

The
**GEOGRAPHICAL
MAGAZINE**



FEBRUARY 1946
1/3

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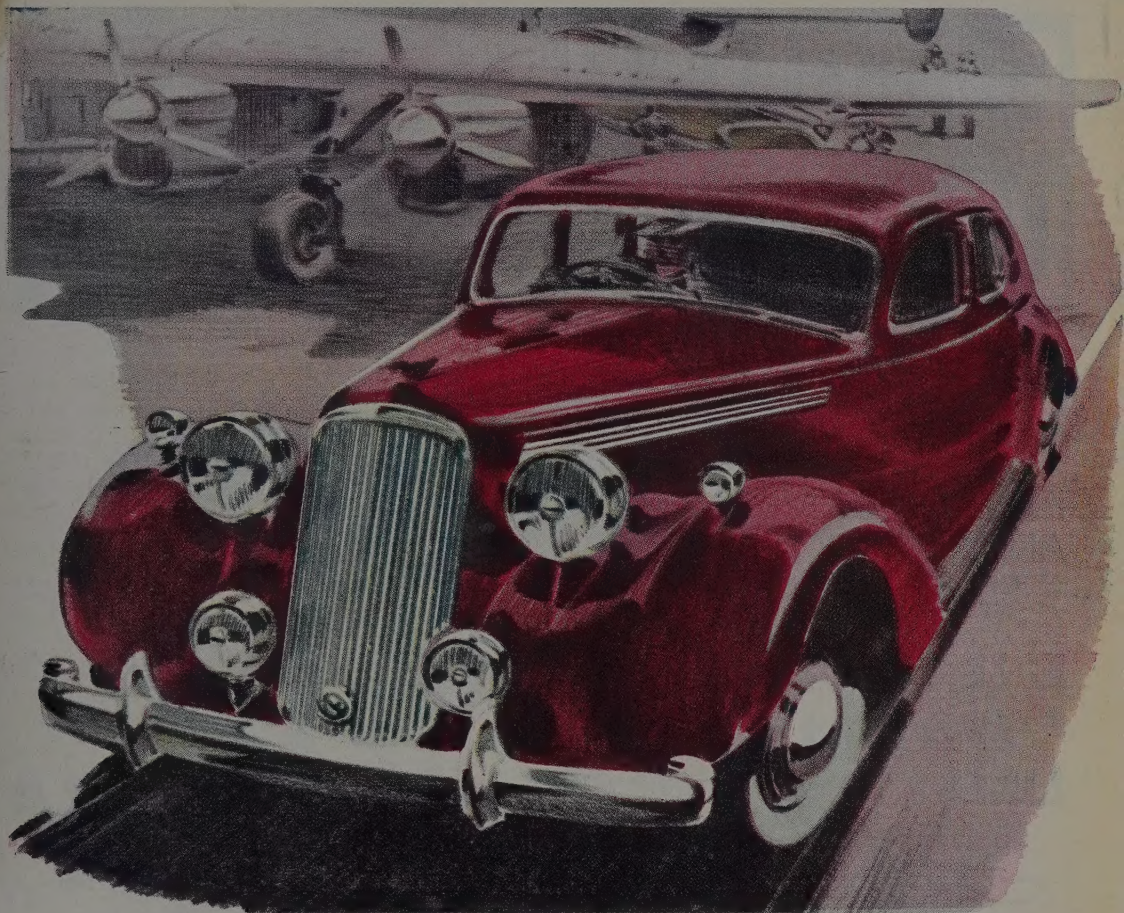
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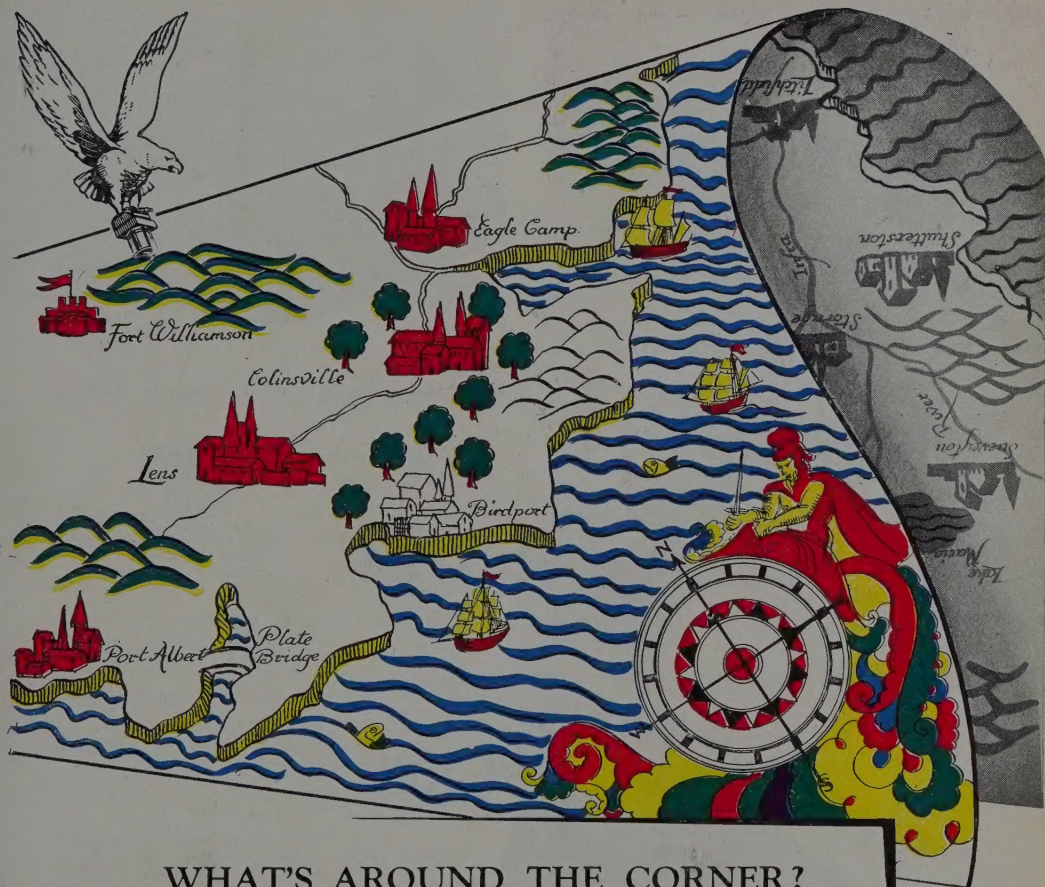
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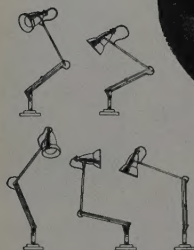
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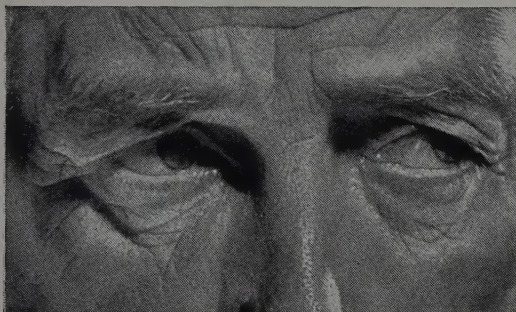
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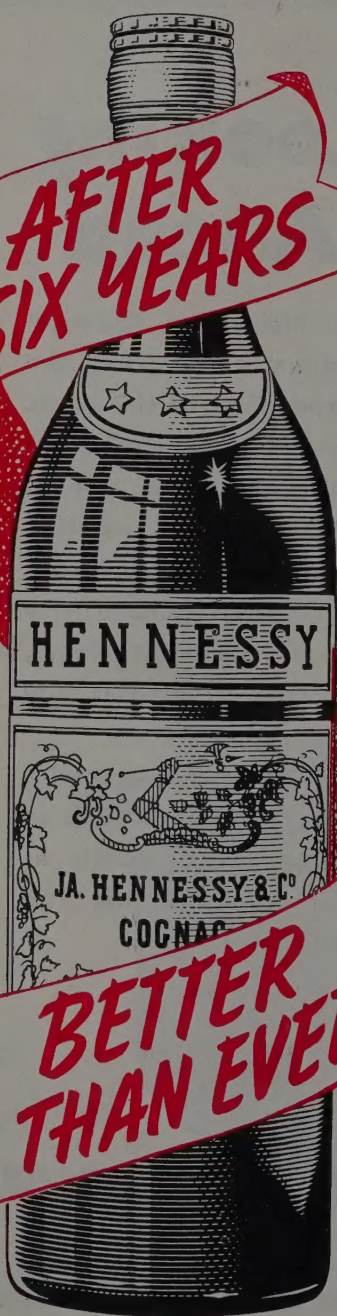
The Main Line Railways' post-war plans include the introduction of the latest scientific improvements in new locomotives and in re-conditioning existing engines. Passenger rolling stock will include new designs with bright colours, new fabrics, plastics and other materials.

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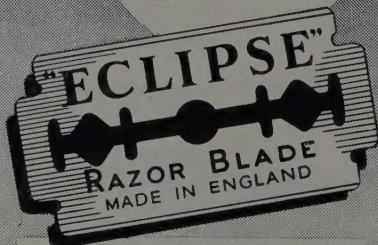
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It is probable that the ceremonial drinking of healths is derived from the Greco-Roman custom of pouring libations to the gods. A more sophisticated age introduced the drinking to living personages. But it must not be supposed that in classical days it was the gods alone who enjoyed themselves. Horace found it necessary to chide the over indulgent with:—

*"Hush friends, O cease
Your impious clamour; and for peace
Keep elbows resting still."*

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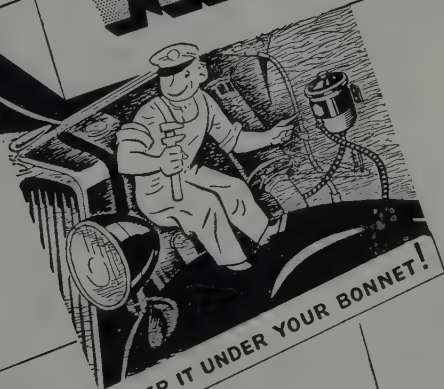
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The founders of THE GEOGRAPHICAL MAGAZINE undertook the legal obligation to assign one half of all profits distributed by way of dividend or bonus to a fund for the advancement of exploration and research, and the promotion of geographical knowledge. This fund is administered by a Board of Trustees, whose Chairman is the President of the Royal Geographical Society or his nominee.

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Stanford, London

by ROY MACARTNEY

Mr Macartney's account of the Australia to which his fighting compatriots are returning will be followed by other articles designed to show what differences of geographical background and of developments during the war may underlie differences of outlook between them and their former comrades in other countries. The author spent four and a half years with the A.I.F. as an artillery officer, both in the Middle East and the Pacific, then nine months in New Guinea as a War Correspondent

SOON the last dark-blue uniform of the R.A.A.F. will have disappeared from the quaint old streets and bushy lanes of England. Cairo's dusty pavements, the Moussky, Shephard's and Groppi's have long since said farewell to Australian battle-dress. Every day, yet another ship laden with green-clad soldiers hoists anchor in some palm-fringed, steaming harbour anywhere from Singapore to the Solomons and sets course for Australia.

The 'Aussie' goes home. After six years of service on practically every front but that in Russia, he exchanges his uniform for the near-forgotten 'civvies' of 1939. Of 600,000 men in the Services when hostilities ceased, 200,000 had been released by Christmas. By June this year, repatriation and demobilization of the remainder should be completed.

Striving to reorient himself, the repatriated 'Aussie' finds that he has returned to an Australia greatly changed from that he knew before he went abroad. It is a more mature country—both in development of its resources

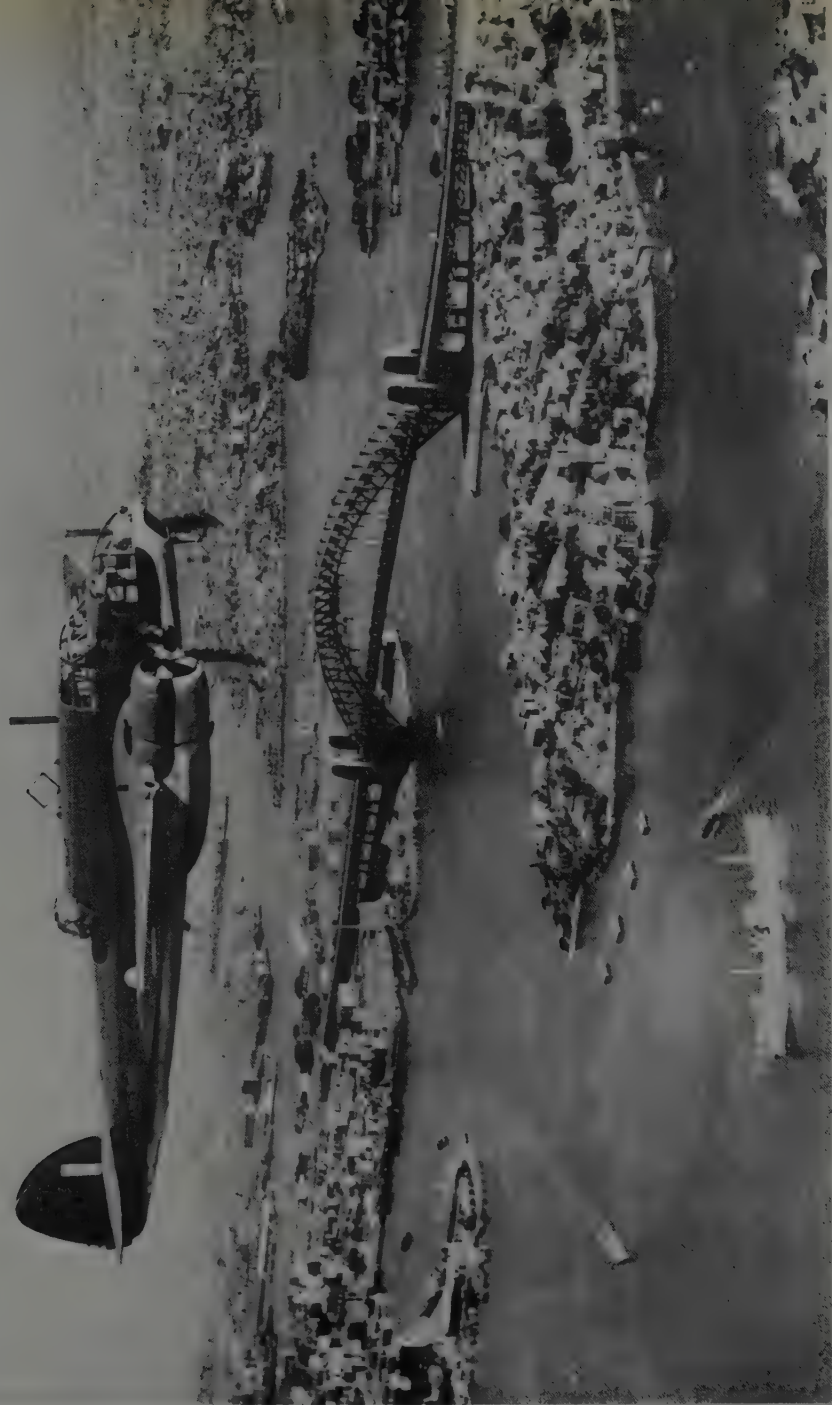
and the approach of its peoples to foreign relations and world affairs.

INDUSTRIAL DEVELOPMENT

Australia has clearly said farewell to the days when she was primarily a nation of farmers and goldminers. There has begun instead an era of industrial development with the almost limitless possibilities afforded by ample supplies of raw materials and cheap sources of power.

The development received remarkable impetus in 1942 when Australia was virtually cut off from overseas supplies of manufactured goods. To meet the threat of Japanese invasion, the country desperately and ruthlessly concentrated all its energies upon arming and equipping every man available to face the enemy.

No expense was spared in developing the munitions industries. Within twelve months of Japan's entry into the war, nearly 500,000 men and women were swung over from



All photographs from the Australian News Information Bureau

Australia's 700th Beauport bomber flying over Sydney Harbour. By the end of the war the Australian aircraft industry, which did not exist in 1939, had delivered 3500 aircraft to the R.A.A.F. Its expansion is typical of Australia's remarkable war-time industrial development

civilian pursuits and added to those already on direct war work or in the Services.

The task of tooling up an agricultural country which before the war had not even built a motor car was a tremendous one. First step was to 'freeze' machine tools. None could be bought, sold or transferred without permission. Pre-war production had been confined to five firms who produced little more than a hundred machines per year. By mid-1943, seventy-five factories had stepped up the output to 14,000 yearly.

There was a concurrent mushroom growth of munition factories. Four were in operation at the outbreak of war; they had increased to eight when Japan entered the conflict; by mid-1943, there were forty-eight, together with 170 annexes, turning out the weapons of war.

A scheme of technical training provided key workmen for all the new machines and processes. By agreement with trades unions, the shortage of trained men was relieved by the use of semi-trained workers. Technical schools and colleges embarked on defence training, working two or three shifts daily. Over 70,000 workmen passed through the Commonwealth Training Scheme.

Many materials required for munitions had never previously been produced in Australia. Scientists battled to meet every demand. In 1939, more than half of the 150 main chemicals needed for explosive were imported. Four years later, practically every one was being produced in Australia. Optical glasses needed for range-finders, predictors, sights, etc., provided another example of resourcefulness. Previously, the glass required had been produced by only eight firms in the world, most of them in Europe. Australia's first makeshift was the welding together of strips of high-quality plate glass. Experiment went on to find the requisite optical glass, as fine as any imported and cheaper. All types of optical instruments were mass-produced to equip Australian and some Allied forces in the Pacific.

The tremendous effort was not in vain. When Australian infantrymen met and fought the Japanese to a standstill in New Guinea, at Milne Bay and in the Owen Stanleys, turning the tide of the Pacific war, they had every item of equipment they required according to prevailing standards. Their very first jungle battles showed that additional equipment was needed for the new type of fighting, and the Australian factories produced it. The green jungle uniform, the light Owen sub-machine gun, the 'Baby' 25-pounder . . . each was quickly provided

in answer to the Army's call.

Only in its blueprint stage at the outbreak of hostilities, the aircraft industry had delivered 3500 aircraft to the R.A.A.F. by the end of the war. The total included more than 1000 Beauforts and Beaufighters and such modern machines as the Mosquito and Mustang. Government aircraft factories in Melbourne expect to complete their first four-engined heavy bomber—the Lincoln—early this year and are preparing for the production of its commercial counterpart—the Tudor.

Shipbuilding also made remarkable progress during the war although the programme was linked with the immense task of repairing merchant and naval ships for the whole of the South Pacific. Between 1942 and 1945, over 10,000 Australian and Allied merchant ships were repaired and maintained in Australian shipyards. Shipwrights at the same time turned out 150 vessels for the Royal Australian Navy, mostly small craft but including 3 destroyers and 66 corvettes. Eleven 'River' class merchant ships, each of 9000 tons, were completed by the end of the war with two more to be commissioned shortly afterwards.

Capital expenditure on munitions factories alone during the war exceeded £70,000,000. When it ended, large-scale factories had been built all over the country, following a policy of decentralization, each equipped with the most modern machinery. Manning them was a newly created army of highly-skilled craftsmen. It was inevitable that these machines and men should exercise a great influence on Australia's peace-time manufacturing industries.

The returning 'Aussie' is proud of the industrial progress the country has made. It is a necessary and inevitable step in the march to nationhood. But as each day, with 3500 other demobilized Service men, he streams out of the gates of the great 'demob' depots, he ponders more and more what problems the industrial transformation of his country must initiate. It is not only the demobbed Service man who is pondering them but also the skilled craftsman, product of war-time munitions making. They both know that social security is assured for several years at least, there being an insistent call for skilled workers while rural industries are clamouring for the return of the third of their manpower which they lost during the war. But it is of the years to come, when the first ravages of war have been repaired and world trade has returned to something like normality, that they are thinking.

How will Australia, whose national eco-



At Newcastle, N.S.W., the Broken Hill Proprietary Co. operates Australia's largest steel-works, with an output of a million tons a year. Based on abundant local coal, they will contribute as greatly to reconstruction as they did to the war effort. This is the head of the Company's Burwood mine

conomic effort was previously concentrated on primary production, fit into the pattern of world trade as a nation playing the dual rôle of primary and secondary producer? If she becomes self-contained, supplying her own manufactured goods and perhaps exporting a surplus, who will be able to take her vast surpluses of wool, wheat, meat, fruit and dairy produce if she wants but little in exchange?

Despite these economic problems, Australians are agreed that the experience of 1942 showed it was suicidal to be dependent on overseas countries for supplies of manufactured goods that might easily be cut off in time of war. Further, they remember how the world depression of the early 1930's taught that the economy of a purely primary producing nation is completely dislocated when world prices for its products fall heavily.

Australia believes that industries are essential to national security and that those which promise exceptional social benefits must remain. The Government has announced its intention to retain control of state-owned factories basic to defence policy, as well as some connected with aircraft and shipbuilding. However, it is arranging to lease the remainder to private industry for conversion to peace-time manufacture.

The Tariff Board, which investigates all claims from industry for protection, recently reported that many of those launched during the war and still in their infancy would, for some time to come at least, require protection from the blast of world competition. Such protection may require an adjustment of tariffs and Imperial preferences, still governed by the Ottawa agreement, under which many



ent on overseas supplies. Lesson number two was that a continent of 3,000,000 square miles must have a well-planned strategic network of trunk railways, which Australia certainly did not possess in the war just finished.

Since the beginning of the century, it has been a source of much amusement and not inconsiderable annoyance to the overseas visitor, when forced to rise from a warm bunk early in the morning, that he has been unable to pass from one State to another without changing trains owing to the break in gauges. State parochialism and railway engineers who refused to abandon their preferences for the common

of the new industries are unprotected. This may entail reciprocal concessions from Australia when the matter of Empire preferences comes up for review not only in the light of changes wrought by war, but of the move towards freer world trade.

Australians generally welcome any prospect of far-reaching removal of barriers to world trade which must in the long run be to their interest; the goodwill of Australia's Pacific neighbours, particularly, being an integral part of her security. However, it is felt that British participation in any steps towards freer trade must ultimately be determined by the United States contribution.

During the 1930's, Australia suffered a heavy adverse balance of trade with the United States. Were she prepared to afford Australia even part of the market hitherto provided by the United Kingdom and the other Dominions—particularly were she prepared to effect a substantial reduction in her duties on Australian wool—some modifications of Imperial preferences would undoubtedly be practicable.

The shadow of unemployment is not at present a menacing one in Australia. In fact it well may be that for many years there will be a manpower shortage if agriculture is restored to its pre-war output and industrialism maintains much of the progress made during the war. Public works, such as the mammoth task of unifying railway gauges, will absorb many additional men.

REBUILDING THE RAILWAYS

Defence lesson number one of World War II was that Australia must no longer be depend-

ent on overseas supplies. Lesson number two was that a continent of 3,000,000 square miles must have a well-planned strategic network of trunk railways, which Australia certainly did not possess in the war just finished.

Since the beginning of the century, it has been a source of much amusement and not inconsiderable annoyance to the overseas visitor, when forced to rise from a warm bunk early in the morning, that he has been unable to pass from one State to another without changing trains owing to the break in gauges. State parochialism and railway engineers who refused to abandon their preferences for the common

good, gave Australia a mixture of three gauges. New South Wales championed 4' 8½", Victoria 5' 3", and Queensland 3' 6" with sometimes a little of each in the other States. Port Pirie Junction, in South Australia, is a monument to this stupidity, three different gauges lying side by side in this one station. It is terminus for the 4' 8½" transcontinental line from Kalgoorlie, the 5' 3" track from Melbourne and the 3' 6" lines from Alice Springs and Broken Hill.

Threat of invasion by the Japanese turned this national joke into a national tragedy. Transfer of troops to protect menaced areas on the vast continent was hampered by bottlenecks on State borders and, in some cases, by the inadequacy of the railways available. Further, the two States most immediately threatened by the Japanese—Queensland and Western Australia—both had 3' 6" railways, the same as that used by the enemy. It was not a happy coincidence.

Unification of the railway gauges has been given number one priority in public works. It entails initial expenditure on the first part of the project of £76,000,000, rising to £200,000,000 when secondary and branch lines are incorporated. To carry out the undertaking, railway staffs will be practically doubled and the work will extend over eleven years. Highlights of this tremendous engineering job are the complete conversion of 5000 miles of 5' 3" line to 4' 8½" in closely settled Victoria, which will take seven years, and the opening-up of 20,000,000 acres of fertile land on the Barkly Tableland in Northern Australia by building 2500 miles of 4' 8½" track linking Darwin with Townsville, Brisbane and Sydney.

First step in the ambitious project is the construction of 419 miles of standard gauge between Fremantle and Kalgoorlie, linking with the existing 1108 miles trans-Australian line running from Kalgoorlie to Port Pirie Junction, South Australia. Such a standard gauge through connection would have been invaluable in 1942 when it seemed certain that the Japanese would soon seize poorly defended Western Australia, almost isolated at the end of an inadequate railway. Conversion of 1760 miles of South Australian railways and 4980 of the Victorian network to standard gauge will follow, and change-over of the 438 miles line between Port Pirie and Broken Hill will provide an additional link between Adelaide and Sydney.

Next step will be to lay 1544 miles of entirely new standard track between Bourke, N.S.W., and Dajarra, Townsville and other Queensland points. Then another 961 miles of standard gauge will be thrown across the Barkly Tablelands, considered the most fertile part of the Northern Territory, linking

Dajarra with Birdum and Darwin.

Early in 1942, Darwin, first Australian town to be bombed, looked an easy mark for the approaching Japanese. Supplies had to be hauled by road across a thousand miles of desert from either Alice Springs or Mt. Isa. The garrison at that time could not have held out long in the face of a determined enemy assault. Australia hopes that the new strategic railway will help a lot to assure that such a situation will never again arise.

Further indications of the magnitude of the task of unification are that later conversions will include the entire Western Australian network of 4650 miles and that in Queensland of 6570 miles.

Some of the munition factories developed during the war have found in this great engineering project an immediate peace-time use. Existing railway and private workshops would have been unable alone to handle the construction of new locomotives and rolling stock for the standard gauge. Some munitions factories and annexes, complete with



In 1917 Australia bridged the gap of over 1000 miles, across the treeless Nullarbor Plain, between her eastern and western railway systems. Vastly greater railway construction is now projected



One of the eleven 'River' class merchant ships of 9000 tons that were completed in Australia by the end of the war. She is seen just after launching at the Williamstown naval dockyard, Victoria

existing personnel and plant, augmented by other equipment where necessary, have been swung over to assist in production. Years of employment will be provided by the manufacture of materials estimated to include 850,000 tons of steel, 3,000,000 steel sleepers, 12,000,000 timber sleepers and 26,500,000 super feet of sawn timber.

MORE PEOPLE: BUT HOW SOON?

Lesson number three of the war was that Australia cannot hope to go on indefinitely with only 7,000,000 people populating such a vast land space so near to the closely populated northern islands and Asiatic continent.

Men are needed both to defend the country and to develop it. Just what is the maximum population Australia can support in view of its extensive deserts and non-habitable areas, has been hotly debated. Perhaps one estimate of 30,000,000 is somewhere near the mark.

But it cannot be hoped to transplant the millions of people from Europe to Australia, providing they desire to go, in a relatively

short space of time. Physical and economic factors operating in an expanding population limit the speed of such a movement.

Believing that the maximum effective capacity of any expanding country to absorb population is somewhere about 2 per cent of its numbers, the Government plans a preliminary immigration target of 70,000 people a year, drawn mainly from British and European centres. The net annual natural increase in Australia should provide an additional 70,000. Preference in immigrants is to be given to ex-Service men and their families and trained civilian workers with specialist knowledge of potential value in the field of industrial activity in Australia. They will be transported under a dual scheme of free and assisted passage.

However, in fairness to both the returning Australian Service man and the immigrant himself, the scheme is unlikely to be implemented for another year or two. Firstly, the shipping required to move new citizens to Australia in reasonably comfortable circumstances is not likely to be available before that time. Secondly, demobilization, rehabilita-



Returning from the jungles of New Guinea with the rigours of what they have endured imprinted on their faces, the 'Aussie' Service men now expect the 'pay-off' of job, home and security. They have learned that Australia forms an integral part of what she previously called the 'Far East'

tion, re-employment of Australian Service men and those in war-time industry must be given priority.

Thirdly, there already exists in Australia an acute housing shortage of 240,000 dwellings. In addition, 235,000 families are living in slum dwellings listed for replacement. Schemes to build 750,000 new homes in the next ten years must be well under way before immigrants can be accommodated.

Australia is anxious to start them on the right foot. She will not attract newcomers with promises which cannot be fulfilled. When the times comes, every man, woman and child wishing to emigrate will be given the opportunity of settling in Australia. They will go to a country with a high standard of living, a healthy climate and what their fellow citizens believe will be a great future. They will be given equal opportunity with all; thereafter, the success or failure of their new venture will depend upon themselves.

AN INDEPENDENT OUTLOOK

One war-time benefit for the 'Aussie' fortunate enough to return from overseas service, is that it undoubtedly broadened his outlook on world affairs. He found his way to so many parts of the globe, rubbed shoulders with so many peoples of different tongues and creeds, that he overcame much of the pre-war insularity which one naturally found in an island like Australia, many thousands of miles from Europe and the Americas.

Despite other changes, he retained his traditional sympathy for those whom he considered to be the under-privileged, manifesting itself in considerable moral support for nationalist movements in various countries around the Pacific. It is doubtful, however, so soon after such a long and exhausting conflict, whether the sympathy is strong enough to allow the Australian to become involved in the domestic affairs of another country.

Although Japan has been removed from the list of potential Pacific aggressors, Australian Service men back from the tropics have become very aware of just how close their homeland is to the thickly and ever-increasingly populated Asiatic continent and islands. Before this war, the national fear was of Japanese imperialism. Japan is finished; at least for many decades to come. However, the uncomfortable reflection undeniably persists that Australia's seven million whites provide just a spot in a sea of yellow and black. It was Japan yesterday, but what Asiatic nation, casting covetous eyes to the south, will arise tomorrow?

Like everyone else, Australia believes that

in this atomic age hopes for world salvation lie in the United Nations Organization. Meanwhile, her defence remains based on that of the Empire; many Australians being of the opinion that Australia and New Zealand, with their specialist knowledge of Pacific affairs in which they are so vitally interested, should be permitted to become the Empire spokesmen in the Pacific.

There is great gratitude in Australia for the warm-hearted and unstinting aid given by the United States during the dark days of threatened invasion in 1942. The United Kingdom and other members of the British Commonwealth of Nations were so involved in the life-and-death struggle in Europe they could do practically nothing to aid her. The United States, being comparatively near, was able to do a great deal. It is true that it was expedient to retain Australia as a great base from which to carry the war back to the enemy, but Australians know there was more in the assistance rendered than just that. They knew that their powerful neighbours will not allow a people which has so much in common with themselves to be subjugated by the Asiatics from the north.

Ties of tradition and kinship among the British Commonwealth of Nations are inexpressibly powerful. They enable us to overcome all family differences, temporary upsets, and are inflexibly enduring. They also, many Australians believe, extend to the United States. The Australian soldier, fighting side by side with the G.I. in the islands to the north, found they both did metaphorically as well as literally 'speak the same language'. Young Australia has retained from the war a marked confidence in one thing—the continued unity of the mighty synthesis of English-speaking nations.

Although the atomic bomb and rocket may have rendered such precautions obsolete, Australia would like to see the island chain to the north, which forms a natural barrier astride the approaches to Australia, amply defended and in friendly hands. There is not likely to be any hesitation in granting the United States a base in the mandated Admiralty Islands, which she is reported to desire. Besides recognizing the moral justice of such a request, in view of the fact that United States forces recaptured the Admiralties early in 1944, Australians are confident that such a base can only be an added protection to Australia.

Perhaps the weakest link in the northern island chain is Portuguese Timor, which a handful of Australians tried to defend in the face of the early Japanese tidal wave and got to know fairly well during months of guerilla

warfare conducted from the hills. It is safe to say that Australia would like the same facilities in Dilli 'for the common good' as she is willing to extend to the United States in the Admiralties.

There is general satisfaction in Australia at the decision taken at the conference of the three Foreign Ministers in Moscow to establish a more representative control of Japan through an Allied Council in Tokyo, on which Australia will be represented jointly with the United Kingdom, New Zealand and India; as well as to endow with effective powers the Far Eastern Commission (now no longer 'Advisory') on which Australia was already represented.

In 1940, Australia, as an equal partner with the United Kingdom in the British Commonwealth of Nations, established direct diplomatic contact with many foreign countries. Two other Dominions—Canada and South Africa—had already established some overseas legations. Australia now has representatives in Washington, Chungking, Moscow, Paris and The Hague, with High Commissioners in London, Canada and India. This step was not one away from the Empire, but rather the implementation of the long-conceded equality of partnership within the Commonwealth of Nations.

Main purpose of the new legations was to keep the Australian Government fully informed and advised on world events, especially those in the Pacific. Australia speaks with the same voice as the United Kingdom on many occasions but also expresses her independent views when the occasion demands. Most of all she is anxious that she be kept abreast of developments so that her opinions may be taken into consideration at a time when they may have some bearing on decisions then being taken; decidedly, she wishes to avoid receiving notification of some cut-and-dried agreement which is binding upon her but in the drawing up of which she has hardly participated.

A VOTER ONCE MORE

Some time this year, Australians again go to the polls for the triennial elections to the Federal Parliament. It will be the first time many voters have done so in 'civvies' since 1937. Service men, it is true, were able in 1940 and 1943 to cast their votes by post; but with the more immediate preoccupations of those hard-fought war years, many failed to avail themselves of the opportunity.

General trends of Australian opinion should crystallize in this first post-war election. They may endorse the Labour Government which gained power late in 1941 and was returned

at the 1943 elections with a sweeping majority in both houses. Then again, they may show a swing-back to the conservative Country Party and Mr Menzies's newly-named Liberals, voters repudiating Labour's foreign policy of recent years and rejecting their plans for nationalization.

Labour, at this stage, does not propose to introduce a great deal of revolutionary legislation. Control of the banks, nationalization of airways and a far-reaching scheme of social services are perhaps the outstanding highlights of their immediate programme.

Although Labour confesses to a much more comprehensive plan of nationalization, the Government, despite its large majority, has been restrained by the limitation imposed on its power to legislate by the Constitution, drawn up at the time of federation of the States. This carefully sets out on what matters the Federal Parliament can legislate and what powers the States have retained.

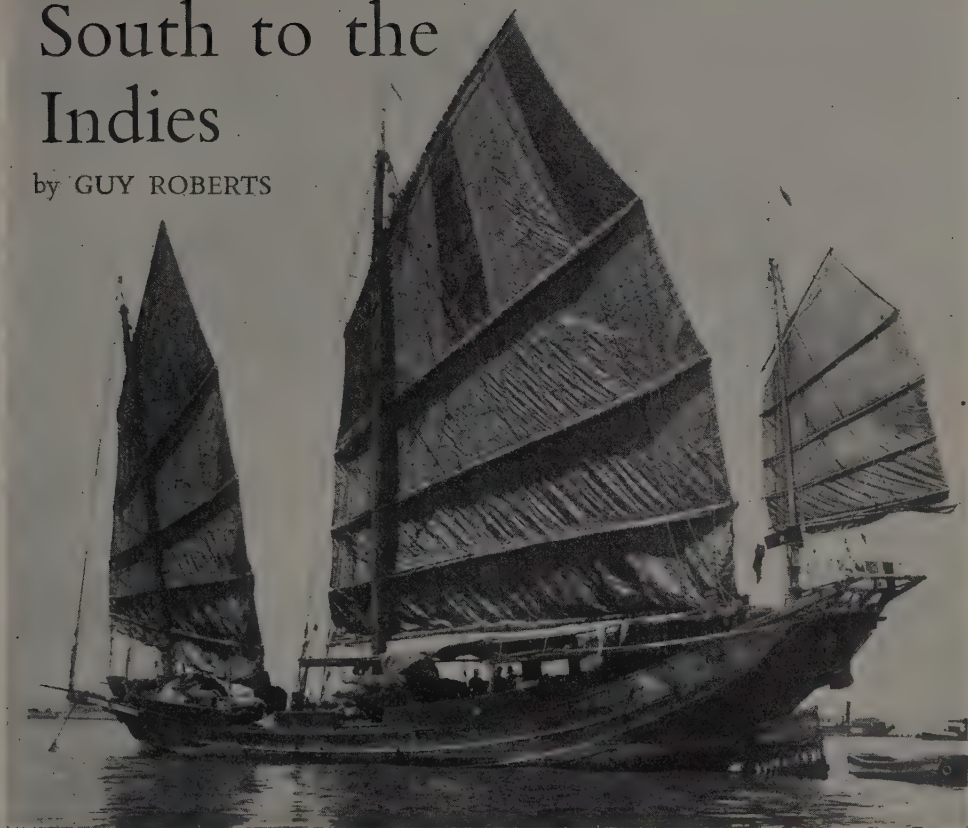
The Constitution can only be altered by a referendum which returns a majority 'yes' from all voters; it must further be supported by a majority of States. In 1944, the Government decided that a referendum should be held on the transfer of fourteen additional powers to the Commonwealth Government. These were said to be required for post-war reconstruction and ranged from control of employment to organized marketing of commodities. It was rejected by four of the six States and a small majority of voters. In view of a recent High Court decision upholding an appeal by airline companies against the power of the Federal Government to nationalise airways, a new referendum for increased powers seems likely. It would be indiscreet to try to forecast the result but with the absence of a request for power to direct employment, its chances of success should be greater than the last.

Australia, according to the President of the Rural Bank of New South Wales, Mr McKerihan, can look forward to ten years of record prosperity, largely because of sound economic control and development during the war. She kept her economic situation within due bounds, the price-fixing system being particularly effective with an aggregate rise of only 22.9 per cent.

Australia has entered a dual era of primary and industrial production. The transformation must involve many economic problems in the years to come. But to the 'Aussie' just home, they are not insurmountable. He looks forward to the development of a young, virile South Pacific nation for whose freedom and that of other peoples of the world he fought so well during the dark years of war.

South to the Indies

by GUY ROBERTS



Mr Roberts' article in our January number described the early migrations into the East Indies from the west. He now directs our attention to those which have more recently entered the region from the north. Other influences affecting the local situation will be described in later articles

If the first fifteen centuries of our era were notable for the colonization of the Indies by people from India, in our own time the migration thither has been more from the China Seas. More particularly this modern migration has been from China, but the recent thrust from Japan to South-East Asia may be interpreted as a parallel movement, differing in character though not in pattern.

The importance of Chinese people in the Indies is partly evident in the numbers involved. There are about two and a half million Chinese in Malaya, one million in Sumatra and Java, a quarter million in Burma and a disputed three millions in Siam. Thus some seven million Chinese now live in political units which have evolved from the Indian colonies of the first millennium A.D.: on

the other hand it is doubtful whether many more than a million Indians now live there.

While the migrational flow of Chinese goes back little more than fifty years, they had been in contact with the Indies even through the early period of Indian colonization. It is rare to find an old account of this region which does not note the presence of Chinese merchants among the islands and there was always a sprinkling of Chinese at the Buddhist seats of learning which grew up there.

That the Chinese only developed an interest in the Indies very late was scarcely due to the dangers and difficulties of navigating the South China Sea which, apart from its periodical typhoons, was less perilous for sailing ships than the Indian Ocean. More significant as a deterrent was the Han tradition which, at

the beginning of our era, firmly established Chinese culture and unity, making China more homogeneous and self-contained than any civilization elsewhere. The political geography of China for two thousand years has kept the attention of the Chinese people focussed on their landward margins rather than on their coasts and what lay beyond. For the Chinese what was happening in Central Asia or in North-East Asia had far more significance, in those centuries when legs, whether of men or horses, were the dominant means of transport, than what went on in South-East Asia. Thus the form of Chinese migration, of Chinese trade and of Chinese military activity was, in the 'Age of Legs', the Kansu Corridor to the north-west of the Great Wall, whence, through the Jade Gate, China maintained most of its contact with Europe and with India.

The Chinese emperors were then not closely in contact with their people on the coasts of South China, and Chinese officials looked upon the seafaring people of Kwangtung and Fukien as barbarian and without significance in the machinery of state. Still less was there any interest in those countries south to the Indies.

But there was one small, though constant, attraction between India and China—the textile trade. The Chinese have shown a continuous taste for fine Indian cottons, the nainsooks, lawns and muslins whose quality apparently could not be equalled elsewhere. For the most part these were exchanged for gold until that later stage when India bought Chinese silks, less for their home use than for further trading with the Middle East and Europe. It was for textiles that Chinese merchants went south to meet Indian merchants among the islands. The Chinese were not concerned with the local products of the Indies and seem never to have been drawn to the spice trade on any significant scale.

As the centuries went by, the combination of pressures of people from the steppes north and west of China and of changing soil fertilities within China, produced what amounted to a revolution in the distribution of Chinese people. In the 1st century, about 8 per cent of Chinese lived south of the Yangtse; in the 12th century, 40 per cent were living there. This came about partly by internal migration, partly by varying rates of population growth, with the effect of inducing a population pressure in South China. It is not surprising, therefore, that the 13th century saw the first settlements of Chinese in the Indies.

The last decade of that century was critical for South-East Asia. The first European, Marco Polo, called at Palembang as he made

his sea journey from China back to Europe. Islam was introduced into North Sumatra. A Chinese armada arrived off the coast of Java.

This Chinese fleet, said to have involved a thousand ships and twenty thousand men, came from that great Mongol, Kublai Khan, who, having mastered the steppes, made himself Emperor of China and demanded tribute and obedience from other Asiatic states. He devastated Burma and quickly controlled Indochina, but finding the Indian colonies of the islands recalcitrant, built a fleet to assert his power among them. Undeterred by the fact that navies were new instruments of war to him and by his earlier loss of one armada in a typhoon off Japan, Kublai Khan sent his Chinese fleet to Java, where it found the local potentates already confused by quarrels among themselves. The Chinese generals found no single power to break and were in danger of being drawn inland to deal with the princelings separately, but they resisted the temptation, fortunately for themselves, because they would have been cut off in a jungle terrain unfamiliar to them. They managed to get their fleet back to China, leaving small colonies of shipwrecked Chinese soldiers on islands off Borneo. Although, as the captains reported, Chinese pirate chiefs were already in command of forts at the mouth of Sumatra rivers, it was these groups of Chinese soldiers left behind by the armada which formed the basis of a Chinese influence that has never again been completely lost in the Indies.

By the beginning of the 15th century, the new Ming dynasty in China had become so well consolidated that it could afford to have a policy of conquest in the Southern Seas, sending ambassadors and fleets southwards for the purpose. The Malacca ruler of the time took advantage of this by soliciting Chinese support against the militant kings of Siam and thereby established Malacca as principal outpost of Chinese Imperial mercantile interest in the south. So successful was this strategy that there developed quite a rush of Indies notables and pretenders towards China to seek protection or support for their schemes. The Ming envoys, too, found Chinese pirate chiefs in control at various points on the ways through the islands, reminding us that trade, or piracy as the envoys disapprovingly called it, carried on by Chinese had been a long-standing feature of the archipelago. These Chinese traders were armed because they were resented by the native chiefs, who looked upon piracy as their own perquisite.

But the Chinese 'Southward Ho' movement



Stanford, London

Present numbers and distribution of Chinese in South-East Asia: the bulk were 20th-century migrants

seems not to have had a sufficient urgency behind it or a sufficiently easy means to maintain Chinese political influence permanently in a region so remote from the centre of affairs. It was not possible for Chinese emperors at that stage of transport facilities to insist on a centralized government for China and at the same time to undertake expansion overseas. Consequently in the growing competition between the Moslem advance on the Indies from the west and the Chinese advance southwards, the Chinese gave way. At first

Malacca was their principal outpost, but by the middle of the 15th century it had reverted to the sphere of the Indian Ocean rather than to that of the Far East. Brunei in Borneo took its place for a time. The Westerners wanted the spices of the islands, the Chinese wanted Indian textiles: both needs converged in the narrow straits round Malaya, but they were not rivals.

By 1625 an entirely new factor had appeared. The Dutch East India Company decided to cultivate on its own account rather

than depend exclusively on what the Javanese cared to offer for sale. As cultivators under this scheme, Coen, the Governor-General of Java, preferred to use Chinese labourers, who thus became an important part of the Batavia population and built up plantations of sugar, the specialized agriculture round that settlement. The Chinese were even then strongly established as the carriers for the scattered island people, a form of commercial activity which they gradually made exclusively their own—they were the travelling middlemen between the big traders from far away and the little producers and consumers of this amphibious region. Though they have varied in importance as producers in the region, the Chinese have maintained their supremacy as the regional middlemen. In South-East Asia the trading function of the early Indians and Arabs has gradually passed to the Chinese, who are now more prominent as traders there than any other single community. Apart from one sordid occurrence, the massacre of Batavia Chinese at the end of the 18th century, the penetration of the Chinese into the region has been peaceful and without violent incident.

Even so, the Chinese were not settling among the islands to any great extent—certainly not on a scale paralleling the early Indian colonization. To the traditional reluctance of the Chinese to leave their homeland, the Ching dynasty (early 17th century) added an Imperial edict forbidding emigration without the Emperor's direct consent. This political obstruction was not designed as a discrimination against other states. It aimed at maintaining an exclusively Chinese tradition in China and at obviating the rise of Chinese pretenders overseas. That the ban was not entirely effective was demonstrated by the continued appearance of Chinese in the Indies, yet it was a serious deterrent to any large southward movement and caused the migration of settlers and traders at that time to be furtive. The migrants neither expected nor received any political or military support from China to safeguard their interests should these conflict with overseas governments. It prevented any extension of Chinese political influence outside China and was one powerful reason for the unique non-political character of Chinese settlements in the south. The emigrant Chinese had to be self-reliant and find for themselves ways to make a reasonable livelihood without offending either the indigenous people or the foreign governments.

Most Chinese who went south came from the coasts of Fukien and Kwangtung, the southernmost provinces of China. Cut off from the Imperial capital by difficult moun-

tain routes, they could take some independent action. This dangerous coast produced the traditional seamen of China. The limited economic resources of their mountains, restricted areas of cultivation and rapidly expanding population stimulated the people of Fukien and Kwangtung to migrate overseas. In these provinces existed geographical conditions resembling those of the Balkans and Iberia which forced the Greeks and the Portuguese to evolve as the navigators, traders and adventurers of their times. From the rock-bound coasts of South China thousands of Chinese took to the sea as their highway, their source of living and their channel of escape from the meagre prospects of their home districts. They ignored the Imperial ban to an increasing extent and moved into the El Dorado of South-East Asia, much as the people of Europe's depressed areas once moved to the Americas.

Although the Imperial edicts became increasingly severe, culminating in one decree forbidding the return of Chinese who went abroad, they failed to prevent migration and only had the effect of forcing those who had already gone south to remain there as permanent settlers. These Chinese proved to be the almost perfect immigrants to the equatorial belt: they discovered that they were physically well adapted to the equatorial climate and could live there for long periods without noticeable ill effects, and they were unrivalled by any other migrant or indigenous people of the Indies for maintaining initiative, alertness, health and personal contentment.

Until the 20th century, however, the Chinese migration was essentially monosexual. Only the men went overseas, making sure in the first place of their family continuity in their home districts. The Chinese overseas settlements produced at first little domestic life. For that reason the migrants did not at first reproduce themselves locally, though offspring from native wives were brought up by their fathers as Chinese.

A change in the character of Chinese migration began when the European powers took steps to get the ban lifted and to encourage Chinese labour in their colonies. When Europeans entered into treaties and pacts with Imperial China, they broke down the already crumbling artificial devices which had been introduced to maintain Chinese exclusiveness. Sino-European treaties from 1831 onwards all contained clauses permitting European and Chinese nationals to move into and reside in one another's territories. From then on, Chinese migration, still restricted largely to people from Fukien and Kwangtung provinces, moved openly in ever greater num-



Paul Popper

The South China coast has many small harbours backed by a hilly mainland whose limited resources oblige South Chinese to seek at sea their livelihood and their escape to better things overseas

bers towards the archipelago. In 1859, for the first time, the British enlisted labour directly from these provinces to serve in British territories, and a Sino-Franco-British pact in 1862 finally legalized open recruitment of Chinese contract labour for service overseas. By 1891 this movement of labour had assumed such proportions that China created its first Consul-General, who was appointed to Singapore. But the prejudice against returning to China and the fear of political discrimination there should they attempt it, continued to be strong among overseas Chinese even until the end of last century, when a Chinese ambassador reported home that Fukien and Kwangtung people of long residence in the South Seas still thought their persons and their possessions would be attached by the Chinese Government if they returned.

Having been legalized, Chinese migration continued to be principally of males, but it became temporary. The men left their families in South China; contracted to serve abroad for a period, sent back their savings, and themselves returned home when their service was over. Their object was to accumulate as

quickly as possible a little capital to set them up comfortably in their home districts. This fact, together with the speeding-up of transport, created for the first time the problem of fluid populations in South-East Asia, a problem whose complexity may be summed up in the estimate that during every year of the present century an average of about half a million Chinese has been going to and from that region.

During the 19th century Chinese migration set more particularly towards Malaya. At the beginning, the islands of Penang and Singapore were virtually uninhabited. When Britain took possession of them, Chinese streamed in and made the settlements almost exclusively Chinese in people, tradition and character. British influence in encouraging the migration became so prominent that Singapore was the principal destination of those who left China and was the springboard for Chinese migration to the Indies, to Burma and even to Siam. Long before the British had any interest in the Malay Peninsula, the Chinese from Penang and Singapore had moved into the Taiping and Kuala Lumpur districts and opened up the tin mining in-

dustry, which was at first a Chinese monopoly in initiative, capital and labour. Sir Frank Swettenham records how as late as 1874 he could not persuade any Englishman to invest so much as a few hundred pounds in Malayan tin mining.

Much of the Chinese migration to Malaya took forms which have left no statistical evidence, but at least five million Chinese moved into Malaya during the 19th century. No other race or community went there in appreciable numbers at that period; the Indians took very little part in the movement. The Chinese flow increased as Malaya developed, so that migration assumed even greater proportions in the 20th century. From 1900 to 1940 about twelve million Chinese aliens landed in Malaya. This century has seen only one other migration of people on this scale—the movement of Europeans to the U.S.A., which totalled about nineteen millions during the same four decades. European migration to the U.S.A. has been fully analysed and studied but the corresponding movement of Chinese into Malaya has passed unstudied and almost unrecognized except by those on the spot, although the Chinese trek southwards has been far more spectacular than the European trek westwards. The twelve million Chinese were moving into an

area about one-sixtieth the size of North America, an area which, while containing extensive zones of virgin land, covered with primary jungle, was already carrying a substantial population of Malays, maintaining themselves entirely by farming, and which had far greater natural obstacles to development than faced immigrants into the U.S.A.

Thus it must be acknowledged that the expansion of European political and economic interests in Malaya has induced one of the most outstanding Asiatic racial movements. In Malaya, Britain provided the capital, China provided the manpower. There has been no parallel example of such a successful economic development through the cooperation of Europeans and Asiatics in one regional enterprise. The unanimous comment of our prisoners of war and internees on the help given them under difficulties by the Malayan Chinese shows that the spirit of this cooperation has been maintained even during our adversity.

The much-discussed population movements from Japan have produced no more than a tiny fraction of the movement which has originated in China. The annual migration into the spaces of Australia during the present century has rarely been as much as half the movement of Chinese into Malaya



The cemeteries of Chinese immigrants, scattered through the Indies, Malaya and Siam on what are known locally as 'Chinese hills', bear witness to the steady toll taken by an exacting climate

The Malayan Information Agency



The Malayan Information Agency

The Snake Temple, Penang. In Malaya and the Indies may be found outliers of China—temples, monasteries and ancestral shrines—which are foreign to the local Moslem traditions

Paul Popper



In Siam, where the Chinese have settled permanently in large numbers (two and a quarter million), public notices, as at this wayside station, are often in Chinese as well as Siamese



Old Chinese customs, particularly in family affairs, are carefully preserved by those who migrate to the East Indies. On such occasions as weddings a wide range of ancient and modern Chinese styles may be seen together

The Malayan Information Agency

In the pioneer towns which the Overseas Chinese have built round the South China Sea, the streets retain the forms and intimacies of China but with more space and a taste for modern amenities. A side street in Ipoh, Malaya, shows this

Dorien Leigh





Paul Popper

A meeting of the Chinese Chamber of Commerce in Singapore. The Chinese trader dominates the distributive and collective businesses of South-East Asia whose economic prosperity largely depends upon him

Paul Popper



The migrant Chinese have grasped at the opportunities which European administrations overseas make available. Chinese students, like these earnest youngsters from the Fairfield Girls' School in Singapore, respond to modern education better than most local people

each month. Nor has this migration of Chinese been exclusively confined to Malaya. Chinese merchants and labourers have moved into Indochina, into Siam, into the Indies and into Burma, but nowhere with the same intensity or proportionate effect as into Malaya.

The content of this migration has been complex. When the migrants call themselves 'Chinese' they conceal wide differences, as great as those between Europeans of different nationalities. For convenience the groups of linguistically and traditionally homogeneous Chinese are called 'clans', but these are as distinctive and as exclusive as national states in Europe. For administrative purposes the local governments of South-East Asia have generally encouraged the Chinese groups to control themselves through their own clan organizations. There were recognized 'Captains China'—clan bosses—in Malacca, Batavia, Brunei, Sambas and Bangkok. The clans even fought one another round the tin mines of western Malaya in the early days. Hence there was a tendency well into this century for the Chinese clans to perpetuate their differences rather than to resolve them. Recently public education in Malaya has led to greater coherence among the Chinese; in Siam, anti-Chinese laws have had the effect of merging the Chinese groups in self-protection. In Batavia, the long history of the Chinese colony has operated to consolidate it. The linguistic and traditional differences of migrant Chinese, however, produce in each Chinese colony a variety greater than that of the European nationalities which moved into the U.S.A.; for example, in 1931, of nearly two million Chinese then in Malaya, 32 per cent were Fukienese, 25 per cent Cantonese, 17 per cent Hakka, 12 per cent Tiuchiu and 6 per cent Hailam.

It is to be noted that the Chinese have had very little cultural effect on the people of the Indies. They have done none of the proselytizing which characterized the period of penetration from the Indian Ocean. In part this was due to the absence of any intense religious philosophy among the Chinese, but even more to the fact that the type of Chinese who went south came generally from the unlettered sections of the Chinese people. Despite the monosexual nature of most Chinese migration, the men neither assimilated nor were assimilated to any appreciable extent. They tended to nucleate into the towns of the region, giving these a markedly Chinese atmosphere. Since they congregate together, the Chinese have in fact a peculiarly strong political and cultural position—but so far they have not used it.

Equally surprising has been the negligible effect of the Chinese on local agriculture. Again we must remember that these immigrants from South China were not drawn from the traditional farming communities. Nor did they usually seek out agricultural opportunities, because agricultural returns are slow and they needed quick profits and a speedy return to China. Hence, although Sumatra, Malaya and Borneo are the only remaining virgin territories likely to meet the need for a large increase in rice production, which must arise as the world's rice-eating population goes on increasing at the phenomenal rates of recent years, there are no signs of Chinese rice farmers migrating there to take advantage of the opportunity. In this sense the migration to the south has not increased the world's food capacity in the way that Europeans going to America and other empty spaces made possible an enormous increase in the world's capacity to support bread-eaters. The archipelago is still the greatest potential supplier for the rice-eaters of Asia—and these are more than a third of the world's total population. But the Chinese took little part in farming in South-East Asia and they have added practically nothing to its area under rice. They have developed the extractive industries of the region, more especially its mining; only recently have they taken to rubber planting, which they thought offered quick profits, but which has had the effect to some extent of tying them down to the land. In Malaya they now form the majority among rubber smallholders.

So far the great migration southward has not had political significance. Chinese colonists have not often been suspect as have the Japanese, though the numbers of the latter have remained very small: probably not more than 10,000 in the whole of South-East Asia. Chinese have not been followed yet by a full-dress irridentist campaign from China. If the countries of South-East Asia could be sure that such irridentism would never arise, they could accept that the Chinese are the perfect colonists. Upon their industry, intelligence and initiative the economic structures of Malaya and Siam have been built, and their skill and enterprise have drawn the greatly expanded trade of the islands into a focus at Singapore. Old China resisted their departure. New China may want them—and their money—back into the fold. That is why Burma, Malaya, Siam, Java, Sumatra and Indochina face a common problem—how to keep happy, contented and domiciled the millions of industrious Chinese scattered among them.

Wild Flowers in the City of London

by J. EDWARD LOUSLEY

THE magnificent display of wild flowers to be seen on the bombed sites of the City of London during the summers of 1944 and 1945 will long be remembered by many people as an unexpected compensation for the dangers and inconveniences which they had experienced from German bombs. To find a precedent for such an exhibition of Nature within the 'Square Mile' we must go back as far as the famous Great Fire of 1666 when some 298 out of the 373 acres then included within the City were laid waste.

The parallel is not a very close one. While all we know of the flora of the City before 1666 is from the scanty casual records of such early botanists as Gerarde, Johnson and Merrett (whose *Pinax* was published in the very year of the Fire), we do know that the western 'Liberties' beyond the limits of the Wall were not closely built up and harboured many interesting wild flowers. Even in the congested centre the unpaved streets may have permitted a number of weeds to thrive. Thus most of the invading species after this earlier conflagration would have only a very short distance to travel, and even the most famous of them, the London Rocket (*Sisymbrium Irio*), was an alien from the Continent known to be already present.

After the recent Blitz most of the plants which arrived in such quantities were travellers which had in many cases come from far parts of the world. Just as provincials and foreigners have so often come to London to seize opportunities which cockneys have neglected, so these plants arrived to exploit the bare open spaces which the new conditions provided. If the streets of London in 1944 and 1945 were not paved with gold it may at least be said that the bombed sites were clothed with the golden flowers of a Ragwort from Mount Etna and the silver of a Fleabane from Canada! It is the purpose of this article to discuss the strange adventures of these new visitors in their long travels, but before doing so we must briefly consider the conditions which led to their arrival.

In 1939 the City of London had long been one of the most densely built-up areas in the

world. A few small gardens, parks, churchyards, and occasional building sites temporarily left exposed, provided practically the only places where plants could grow and it is doubtful whether as many as twenty species could be found. There were however two plants of special interest—the Bracken (*Pteridium aquilinum*) which grew below street-level on damp walls by the steps which gave access to some basements, and the Pellitory-of-the-Wall (*Parietaria diffusa*) which appropriately thrived on the medieval masonry of the 'Roman Wall' by St Alphage.

In September 1940 the Germans commenced their attempt to destroy London, and the congested City was one of the main targets. The most extensive damage was caused in the incendiary raid of December 29/30, 1940, and with the exception of a few caused by flying-bombs and rockets, almost all the exposed areas now to be seen date from the eight months ending in May 1941. By far the greater part of the destruction was caused by fire, and it is important to notice that only in a few cases did high explosive result in exposure of the soil beneath the foundations of the buildings, so that it is unlikely that long-buried seeds were brought to the surface in any quantity.

In 1941 the City, therefore, presented an area which was almost sterile from the botanical point of view and in which any plants observed might be regarded as almost certainly fresh arrivals from outside. Work on clearing the sites commenced almost immediately and lorries and horse-drawn carts might be seen carting away the debris until the sites were left either as empty basements or as basements filled with rubble up to street-level. On such habitats dust soon accumulated to form soil, and mosses arrived to anchor the dust, with the less obvious algae to add a quota of humus to the soil. Then came the flowering plants.

The first flowers to arrive were those with wind-borne fruits. Rosebay (*Epilobium angustifolium*) was perhaps the earliest arrival and was in flower on the truncated walls of burnt-out buildings before the end of 1941.



Painted by Eliot Hodgkin

In the possession of Sidney Rogerson, Esq.

Saint Paul's from Fell Street

The first wild flowers to invade a bombed site. The deep purplish-rose flowers of the Rosebay are usually followed by the yellow stars of the Oxford Ragwort (right foreground). The spike of Rosebay in the centre shows unopened buds above flowers and young seed-pods

(*Opposite*) On mediaeval masonry of the exposed section of the Roman Wall the Pellitory-of-the-Wall throve long before the City was bombed. As seen in the picture (left centre and right foreground) it has now spread onto the adjacent rubble. The yellow-flowered rather 'spiky' plant in the foreground is the Eastern Rocket which is often taken for the London Rocket. Other yellow flowers and the leaves in the foreground are those of the Oxford Ragwort, with a few spikes of Rosebay



Painted by Eliot Hodgkin

London Wall from Aldermanbury Postern



Rosebay Willowherb



From William Curtis, *Flora Londinensis* 1775-1798
Groundsel

Oxford Ragwort (*Senecio squalidus*), Common and Viscid Groundsel (*S. vulgaris* and *S. viscosus*) and Canadian Fleabane (*Erigeron canadensis*) were not far behind in the race.

But there were other arrivals whose seeds had been brought in mud on the wheels of carts and lorries clearing the sites and perhaps also on workmen's boots. These included Chickweed (*Stellaria media*), Shepherd's Purse (*Capsella Bursa-pastoris*) and Greater Plantain (*Plantago major*) among the earlier immigrants. Then droppings from horses and material scattered from their nose-bags led to the germination of seeds of plants connected with fodder—such as Clovers (*Trifolium pratense* and *T. hybridum*) and grasses (*Lolium perenne* and *L. multiflorum*). By the end of 1942 some 27 species had been observed—a number that might have been greatly exceeded in the West End where the plants had shorter distances to travel.

It was in 1943 that the really rapid influx

of flowers into the City occurred and ever increased as fresh sites were cleared. The species already present multiplied and spread, others came in by the means already mentioned, while yet others were introduced by birds; with packing materials, druggists' sweepings and greengrocers' rubbish furtively disposed of; and even in one case, the Tomato, apparently with City workers' lunches! In addition to these accidental introductions, seeds of ornamental garden plants were deliberately scattered by well-meaning folk and in some places these horticultural interlopers proved persistent. Thus by the end of 1944 at least 111 species were on record from the bombed sites of the City of London, while in 1945 still further introductions occurred and over a dozen fresh plants had been found before midsummer. We may now consider the travel history of some of these flowers.

The first plant to arrive in great abundance was the Rosebay Willowherb whose hand-



Shepherd's Purse

some spikes of purplish flowers are succeeded by fruits bearing silky hairs which act as a parachute to ensure dispersal. Professor Salisbury has estimated that a young plant may yield 80,000 of these seeds in a season—and a large adult specimen many more. Each seed germinating in a suitable place matures rapidly and the resulting plant spreads by underground shoots which may each grow as much as a yard in a season. The species has thus most exceptional possibilities for increase both by seed and by vegetative means. Rosebay is believed to be native in Britain, but most of the localities known to the early botanists were in remote mountain districts of Yorkshire and Scotland, and they regarded it as a rarity in the lowlands. In 1824 Smith records one locality for the plant near London and remarks that it is “a very ornamental flower, common in gardens, where it increases but too rapidly; thriving, like many mountain plants, even in



Pellitory-of-the-Wall
From William Curtis, *Flora Londiniensis* 1775-1798

the smoky air of London”. In the last century Rosebay has become abundant in woods, on heaths and railway banks in Southern England, showing a great partiality for burnt areas. Ground which has been subject to great heat is poisonous to many other plants but not to Rosebay, which thrives on the nitrates available and the opportunity of germinating in full exposure to light. Such conditions were present to the full in the City in 1940.

In the early days the Common Groundsel of world-wide distribution was one of the most abundant plants on the bombed sites but it was soon clear that it was to be vastly outnumbered by the related but much larger and handsomer Oxford Ragwort. This Ragwort is a native of the Central Mediterranean where it has long been known, especially from the lava-soils of Mount Etna. In the 17th century it was cultivated in the Physick Garden at Oxford and by about 1800 it had

Saint Paul's and Saint Mary Aldermary from Saint Swithin's Churchyard

(Opposite) The richer soil of old City churchyards affords additional opportunities for many species. Here are shown the flower head of the Leek, the bare stem of the Hogweed and the leaves of the Tufted Vetch (all left), with the Broad-leaved Dock (left centre and extreme right), the grass Yorkshire Fog (right centre), Scentless Mayweed and leaves of Common Clover (right foreground); as well as such wind-dispersed plants as Canadian Fleabane (left), Common Sowthistle (left and right), Dandelion (centre) and Coltsfoot, with one plant of Viscid Groundsel (extreme left foreground)

The Haberdashers' Hall

(Below) The yellow Oxford Ragwort and Rosebay (in bud, right centre) brighten the ruins of the Haberdashers' Hall, burned out for the third time, as it suffered in the Great Fire of 1666 and in 1840

Painted by Eliot Hodgkin

Crown Copyright





Painted by Eliot Hodgkin



From William Curtis, *Flora Londiniensis* 1775-1798

Common Sowthistle

become naturalized on old walls about the town. By 1879 it had spread to the railway track and, finding the clinker-ash to its liking, increased rapidly. Like so many of the Compositae it has fruits crowned with a little parachute well adapted to wind dispersal, and the natural spread of the plant was greatly aided by the wind-borne fruits being caught up in the vortex behind trains and carried along to find a suitable environment for germination wherever they dropped by the track. Thus it rapidly spread along the Great Western Railway system to Didcot, Swindon and South Wales, to Reading, Maidenhead, Southall and London. Today every traveller from Paddington can trace the remarkable distribution of this plant for himself. During the twenty-five years preceding the late war the Oxford Ragwort has gradually increased about London and in 1939 and

1940 the movement received some impetus from the construction of air-raid shelters. The devastation of large areas by fire afforded conditions with some resemblance to those of the plant's native home—soil which had been subjected to great heat by fire and raised to a high temperature by the sun in summer—and here the Oxford Ragwort is seen at its best.

The Viscid Groundsel is another relation of the Ragwort which flourishes on the bombed sites. A native of Northern Europe this plant is most at home with us near the sea—especially on shingly or sandy ground. It occurred occasionally round London before the war but usually on the sides of newly made roads and on waste ground, and was always regarded as a rarity. On the bombed sites it has appeared in the greatest abundance and its spread may possibly be traced to the use of lorries belonging to the company owning Ham Gravel Pits, where it has long been established, though the eventual rapid increase is undoubtedly attributable to wind-dispersal of the fruits.

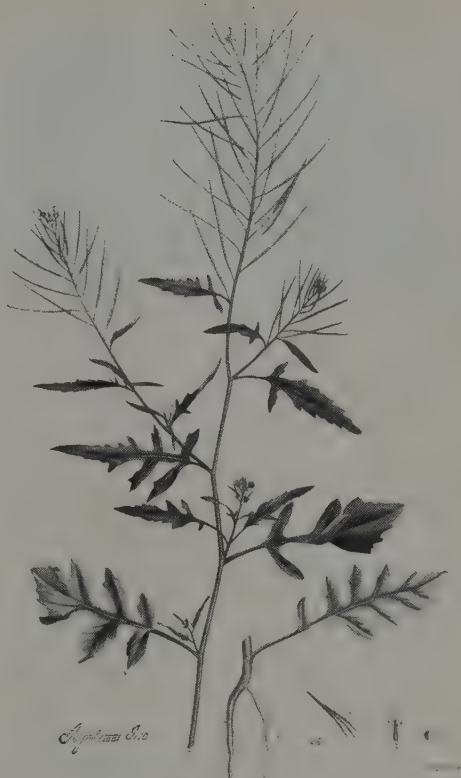
From the New World comes the Canadian Fleabane, known in its native home as Horse-or Butter-weed. First known in France in 1655 from Blois and from the Midi in 1674, it appears to have reached London soon after the Great Fire, for John Ray, on the authority of his friend Dr Tancred Robinson, records it in 1690. Its partiality for bare, dry places probably led to its increase then, as after our recent fire damage. Whether the Canadian Fleabane reached us direct from North America or whether it travelled to us via the French capital, where it had been observed a little earlier, we shall never know. In this country its progress has been comparatively slow and it has only just reached Doncaster after more than 250 years; but it has now invaded almost every country of the world including Australia!

A much rarer Composite on the bombed sites is Gallant Soldiers (*Galinsoga parviflora*) which has travelled from as far afield as Peru. This species prefers richer soils than those already mentioned, and although seen on a few bombed sites it is more abundant in the Temple and by the ruined churches of St Dunstan's-in-the-East and Allhallows, Bark-ing. It is known that seed of this species was sent to Kew from Peru and grown in the Gardens there in 1796, but it is not until about 1860 that it was recorded as naturalized about Richmond and Kew, whence it had 'escaped' from cultivation. Until the present century the spread of the plant was not rapid, but then apparently it became a pestilential weed in market gardens at Ham and later at

Mitcham, whence it was distributed in boxes and pots of nursery plants to many places about London and elsewhere. The fruits have little burrs which cling to clothes and have doubtless facilitated further distribution. It is of interest that a closely allied species—*Galinsoga quadriradiata*—which also comes from Peru has been observed in recent years in the West End and South and West London, but this has yet to spread to the City.

Sowthistles (*Sonchus oleraceus*), Dandelion (*Taraxacum officinale*), Mugwort (*Artemisia vulgaris*) and Coltsfoot (*Tussilago Farfara*) are among other common wind-dispersed members of the Daisy Family found on the bombed sites. The Coltsfoot is notable for its handsome golden flowers which appear before the leaves in the spring, to be succeeded by 'clocks' of parachute fruits. It is thoroughly at home on railway banks right into the heart of London and has spread thence onto the bombed sites wherever sufficient moisture is available. Before leaving this family mention must be made of a scarcer City member, the Rayless Mayweed (*Matricaria matricarioides*), which has reached us from North America. This plant, sometimes aptly known as Pineapple Weed, was first observed in Britain about seventy-five years ago, since which time its progress has been very rapid throughout the country. The fruits are undoubtedly conveyed in the mud attached to the wheels of carts, and the writer has seen it on tracks amidst the heather in remote parts of Scotland—always confined to the tracks. There can be no doubt that it has been brought to the bombed sites by the same means.

London Rocket (*Sisymbrium Irio*), contrary to general belief, occurred in the streets of London before the Great Fire but it seems to have increased considerably after the conflagration. This alien disappeared from London about a century ago and in recent years it has been seen in very few places in the British Isles. There is no scientific evidence of its reappearance on the bombed sites, though it happens that two closely related aliens which are not usually described in our handbooks have occurred in some plenty and have been the subject of letters to newspapers announcing that London Rocket had been refund! The most frequent of these two aliens is Eastern Rocket (*S. orientale*), a native of Mediterranean Europe and South-West Asia. The less common is the Tall Rocket (*S. altissimum*), a native of Eastern Europe which has become naturalized throughout most of Europe and is a pernicious weed in North America.



From William Curtis, *Flora Londiniensis* 1775-1798

London Rocket

It is possible that the Tall Rocket has crossed the Atlantic twice and the Russian Thistle (*Salsola pestifer*) has almost certainly done so. This bushy, spiny plant is a relation of the native Saltwort of our sandy coast but differs especially in its very narrow leaves. It appears that the home of Russian Thistle is in Eastern Europe and probably in the steppes. Thence it spread westwards, making rather slow progress, until some accident led to its introduction to the Prairies of North America which proved even more to its liking than its true home. In America it soon became a most troublesome weed and thence it has spread back to the districts around the ports of Northern Europe. At Dagenham to the east of London, Russian Thistle may be seen by the acre, and although it now occurs in many other places around London it seems that its immediate introduction to the City

is most likely to have been from the eastern side.

Of the ferns there is one, the Bracken, which seems likely to become one of the dominant plants of the bombed sites. Normally ferns reproduce sexually, the spores on the back of the fronds of most species giving rise to prothalli on which the union of male and female organs leads to the production of the next generation. The Bracken however usually increases vegetatively by means of long underground rhizomes and it is rare to find young Bracken plants. The advantage to the Bracken of this habit is that it can thrive in dry places where reproduction from spores, to which as most ferns are limited, is impossible. In the City of London today may be seen the rare phenomenon of Bracken arising from spores on a large scale, for it is clear that even the powerful thrusting rhizomes of this fern could not push through the brickwork separating the thousands of basements in which it now occurs. It happens that these basements have provided the necessary moisture and shade for the germination of the spores which are always present in the air, even in built-up areas. Moreover in many places within the City the process may be observed in its early stages, for the sporeling

Bracken found on damp walls and in the jointing of pipes can only have arisen from spores conveyed by the wind. Bracken is a cosmopolitan fern, but the occurrence of so many individuals which have originated from spores and not rhizomes in a single small area may well be unique, although the phenomenon has been also observed on a much smaller scale in other bombed cities.

There are many other plants in the City today which have come from distant lands, but space has only permitted discussion of those which occur in plenty. All will find only a transient home here. The total acreage of the modern City of London is about 673 acres, and of these some 460 acres were occupied by buildings before the war. About 164 acres of built-up land have been laid waste and it is clear that in such a valuable district rebuilding will commence as soon as circumstances permit and may be completed within comparatively few years. Then our present plant visitors from abroad must disappear by the hand of man, but before they do so many may be vanquished by the more aggressive native plants such as Bracken. How soon this will be we cannot yet tell, but in the meanwhile the visitors will help to hide the hideous scars left by foreign aggression.





Musk Turtle

Painted Turtle

The Girl with the Turtles

by MARSTON PIERCE

ANNE PEACOCK, who has converted her hobby of trapping vicious snapping turtles for scientific purposes into a profitable business, is a slightly built, sun-tanned girl who thinks no more of handling a 50-lb. snapping turtle than another might a family pet. Together with her mother and father, Mr and Mrs Ralph A. Peacock, she sets off each year from her home in Michigan and zigzags by trailer through Ohio, Indiana, Illinois, Wisconsin, Minnesota, Missouri, Mississippi, Arkansas, Louisiana and Florida trapping turtles as she goes. In addition to her other work Miss Peacock undertakes to rid private lakes of this reptilian, which preys on the game fish of the country, for some of the wealthiest landowners in the United States. She takes her catch as a partial payment for her services.

Much of Miss Peacock's knowledge of turtles has been learned from her father, but she has gained much from her own experience and observations since she was old enough to toddle after her father when he began trapping operations twenty-two years ago: she has in addition read most of the material that has been published on the subject.

Although there are several species of turtle found in Minnesota, the snapper is the only one found in sufficient quantities to warrant extensive commercial trapping. The snapper is utilized as a basis for turtle soup, although many prefer it in steak or baked

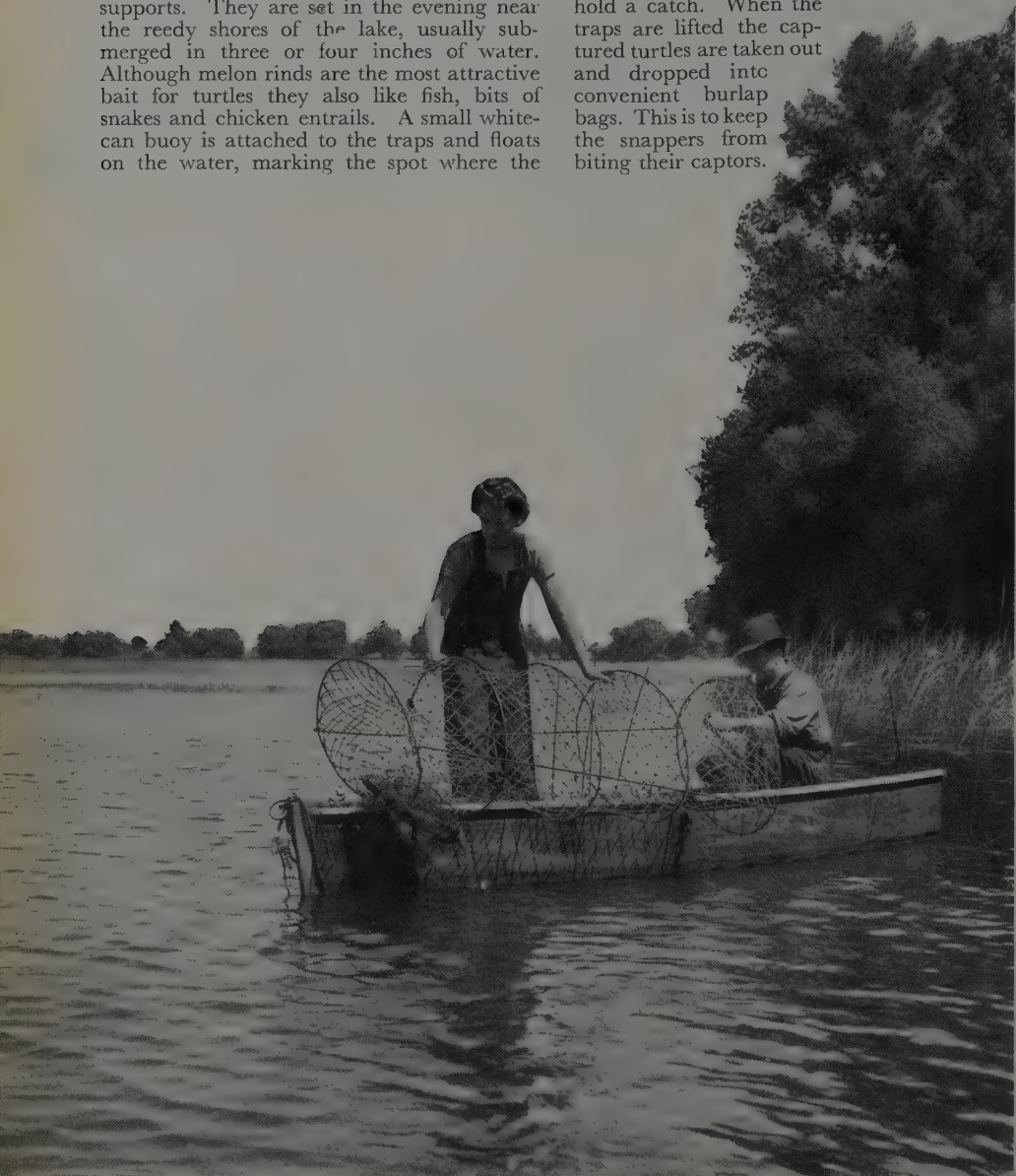
form, and because the demand for the snapper always exceeds the supply, the Peacocks can sell all they catch at prices ranging from 7 to 14 cents per pound, including the shell. The biggest markets for them in the United States are at Canton in Ohio and Peru and Marion in Indiana (the glass-blowers in Marion are great turtle eaters). Baltimore, Washington and Chicago are also good markets. The Peacocks average \$5000 to \$8000 annually from this source, but in one year when they monopolized the trapping industry in three northern States, they hired two other trappers to assist them and grossed more than \$25,000.

Miss Peacock is scientifically grounded in herpetology, having specialized in turtles at the Michigan State College. She collects specimens for three universities, many high schools, and for the local State conservation departments wherever she is trapping. She was born in Lake County in Michigan and developed a love for nature as a small child. Mr Peacock saw to it while they were traveling that her education was not neglected, and now she boasts that she has attended more schools in more States than anyone she knows. Her hobby at the present time is collecting specimens of poisonous spiders and snakes. She also collects eggs of the various wild birds. Her trailer home is her museum and here one finds many interesting nature exhibits.

After selecting a lake that shows definite signs of turtle habitation, the Peacocks park their home on wheels and begin trapping operations. The traps are constructed of heavy fish-net twine in hoop form, and are supported by wire bands and two wire side supports. They are set in the evening near the reedy shores of the lake, usually submerged in three or four inches of water. Although melon rinds are the most attractive bait for turtles they also like fish, bits of snakes and chicken entrails. A small white-can buoy is attached to the traps and floats on the water, marking the spot where the

traps are set. They set 40 to 50 traps each evening, although they carry as many as 627 in their kit.

In the early morning the Peacocks are on their way to lift the traps. If they see bubbles rising to the surface, it is a sure sign that they hold a catch. When the traps are lifted the captured turtles are taken out and dropped into convenient burlap bags. This is to keep the snappers from biting their captors.



Photographs of Anne Peacock by Evans from Margot Lubinski

Anne and her father take up the turtle traps. She handles an outside in catches with superb confidence before packing it, together with others, into a crate for transport





(Above) Mother covers the eggs: like ping-pong balls in size, shape and (when fresh) ability to bounce. (Below) The baby Snappers crack the tough eggshells, here shown removed from the nest





Kodachromes from Lynwood M. Chase

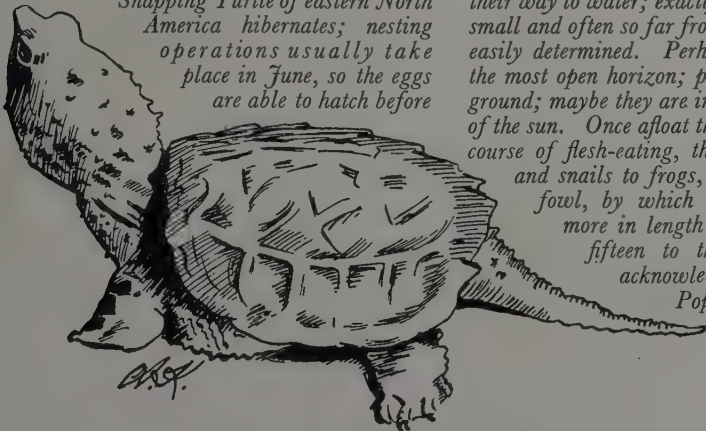
How do I find the nearest water?

A SNAPPER ENTERS THE WORLD

Although most turtles spend the greater part of their lives in the water, they are all bound forever to the land by the necessity of burying their eggs in the earth. Motherhood consists of a single episode: the laying and burying of the eggs where the heat of the sun or of decaying vegetation can promote development. From October to March, or later, the Common Snapping Turtle of eastern North America hibernates; nesting operations usually take place in June, so the eggs are able to hatch before

the onset of severe weather. In northern districts, however, hatching is sometimes delayed till the spring.

A female lays from twenty to about forty eggs at a time, in a cavity (flask-shaped as a rule) dug by alternate strokes of her hind feet, with which she also rakes back the loose material to bury and conceal them. The hatchling Snappers make their way to water; exactly how, when they are so small and often so far from suitable water, is not easily determined. Perhaps they move towards the most open horizon; perhaps towards damper ground; maybe they are influenced by the position of the sun. Once afloat they can begin that lively course of flesh-eating, through larvae, tadpoles and snails to frogs, fish and young water-fowl, by which they attain a foot or more in length and a weight of from fifteen to thirty pounds. (With acknowledgment to Clifford H. Pope, Turtles of the U.S. and Canada).





Care is required when packing the turtles to prevent them fighting

The turtles are then taken ashore and packed in wooden boxes and crates to be shipped alive to their respective markets. The traps are then dried, rebaited and set out again. The largest haul the Peacocks have made was in the Mississippi River, where they caught over 5 tons in one night.

A large number of painted turtles are captured and, having no commercial value besides being highly destructive of the spawn of all fishes, are taken ashore and killed. Sometimes a soft-shelled or musk turtle is captured. The soft-shelled turtle is edible but is not found in marketable quantities to warrant extensive trapping. The musk is the only poisonous species found in Minnesota. It transmits a poison, with effects similar to poison ivy, by emitting a liquid that creates an annoying rash if it comes in contact with the bare skin. Its bite is not harmful.

Many freak turtles are included in the

catch. Some have two heads on one body, or two tails, and many have extra legs. The turtle shells have no value except as ornaments, so the Peacocks make no effort to market them separately.

According to Miss Peacock, Minnesota has ten species of turtles of which the snapper and the soft-shelled are the edible types; except for the musk and the painted, the others are of value as scavengers and are released when found in traps.

She says, "The story that turtles have seventeen kinds of meat is all bunk. Turtles have just one kind of meat, and that is delicious. The turtle is one of the most common and the least appreciated foods."

The turtle is a voracious eater, but fish doesn't make up as large a part of his diet as many think. About 50 per cent of his diet is vegetation. He also eats many ducks and other waterfowl.

Miss Peacock says that we know less about the turtle than of any other reptile.

"Why, the turtle isn't even as slow as most people," she declares. "The snapper can dart his head and neck out with the speed of a rattlesnake. And there are even turtles known that can beat a hare in a foot race for a short distance. He's a fascinating fellow, the turtle; and the better you get to know him the more fascinating he becomes."

As Minnesota is one of the few States without adequate laws governing the trapping of these reptiles, the Peacocks would like to see some legal restrictions passed as to the size limit of the trapped turtles. They also consider that turtles should not be trapped while in the egg-laying season and should be allowed to reproduce at least once.

For their next expedition the Peacock family hope to journey up the Amazon River in South America in search of rare specimens of turtles and reptile life for several American universities.

The Diffusion of Greek Culture

II. Macedon and the East

by DR. W. W. TARN

The first article in the present series, by the Headmaster of Harrow, appeared in our December number. Readers desiring to extend their knowledge of Dr. Tarn's subject may be referred to his book The Greeks in Bactria and India (C.U.P. 1938). The next article will deal with Greece in Rome

In speaking of the East one's thoughts naturally turn to Alexander of Macedon, for he was the foundation of all that happened later; but it will be necessary to pass lightly over Philip's amazing son, who in his brief life lifted the civilized world out of one groove and set it in another, gave to Greek thought and science the opportunity of spreading over half Asia, and by starting the Hellenization of Asia Minor and Syria gave to Christianity when

it came a medium in which it could grow and expand; he died in 323 B.C. of a fever at Babylon before he was thirty-three.

I cannot describe here that tremendous feat of arms, the conquest of the Persian empire; or the great progress in several sciences due to his expedition; or his character, so far in advance of his day that no one could understand him; or his mystical relations with the god Ammon, to which none might allude; or



Stanford, London



Bronze mask (broken) from a temple at Shami in south-west Persia, recently excavated by Sir Aurel Stein; identified as Alexander by the hair brushed back from the forehead, which is characteristic of representations of him

From 'Social and Economic History of the Hellenistic World' (Rostovtzeff) O.U.P.

the design falsely attributed to him later of conquering the Mediterranean basin, or even the world; or the unexampled mass of legends which, from Britain to Malaya, became attached to his name. I must confine myself to just one thing bearing on Asia, though probably it was the most important thing about him. He had been Aristotle's pupil, and crossed to Asia holding the common Greek belief, which Aristotle had stereotyped, that mankind was sharply divided into Greeks and barbarians, the latter, Asiatics in particular, being inferior people, only fit to be conquered and enslaved. Once he had seen Egypt and Babylon, and had met the hard-fighting Persian nobles in battle, he realized that this would not do: barbarians, like Greeks, must be treated on their merits, and the best took high rank. For himself, there was henceforth, as St Paul was to declare later, neither Greek nor barbarian; it was one of the greatest revolutions in thought known to history. He had to apply this to the Persians, whom he had conquered and now had to live with; he decided that the Iranian race was too important and virile to be held down,

and that his only course was to take them into some sort of partnership. He began with various practical measures—many Iranian satraps, some Persian nobles in his body-guard, a mixed army, mixed marriages on a considerable scale; his Macedonians did not like it, but his active mind had already, in thought, gone far beyond such things: he declared that all men were sons of one Father, the earliest enunciation known of the brotherhood of men, at least among western peoples. It was this which led, shortly before his death, to the unique scene at Opis.

To celebrate the end of the great war, he gave a banquet at Opis near Babylon to 9000 men, at which every race in his empire, and also Greeks (who were not in his empire), were represented. After the banquet the whole company made a libation in unison at the sound of a trumpet, which was a religious act, and the ceremony culminated in Alexander's prayer. He prayed for three things: first for peace; then for the partnership in the realm of all the peoples of his realm there gathered together; and lastly that all the peoples of his world might be of one mind together and live



Alexander killing a Persian, from the battle-piece which forms one side of the so-called Alexander-sarcophagus from Sidon in Syria; good Greek work of the late 4th century B.C., made for some Sidonian prince. The Persians wears trousers, proper to a barbarian; Alexander, the short Greek tunic

in unity and concord. For Alexander believed that he had a divine mission to be the Reconciler of the World; and it was his dream of unity which inspired Zeno, the founder of the Stoic philosophy, with his vision of the world as one great city of gods and men, without distinction of race, bound together by their own willing consent, and subject only to that Universal Law which was God. Many have dreamt Alexander's dream since; but he was the first. He was fortunate in his death, for had he lived he would, being Alexander, have tried to make that dream a reality, and would have failed as men have failed ever since. Perhaps today we *have* to succeed, or perish.

After Alexander's death, the wars between his generals for his empire left Seleucus in control of nearly all the Asiatic portion. He and his son carried on what Alexander had begun in Asia, but it was not done in Alexander's spirit; any idea of partnership was abandoned, and Macedonians and Greeks, who in Asia soon became indistinguishable, were to be the dominant race; these kings did not desire to Hellenize Asiatics, but to make a

strong state of their own people. Alexander had been a great city-builder, and had built some 17 Alexandrias, nearly all in the Far East or in India; beside the great Alexandria in Egypt, five are still represented: Khojend, Merv, Termez, Herat and Ghazni. The Seleucids caught his inspiration and ultimately filled parts of Asia with Greek cities, notably Asia Minor, north Syria and Babylonia. Some cities were founded directly; more perhaps were military colonies which developed into cities. These cities had their own Greek city law; most contained bodies of Asiatics, sometimes very large, who had not the franchise, though individuals might have; but the Greek magistrates administered the whole city, and all the inhabitants were subject to the Greek city law. Greek civic forms proved attractive to Asiatics, and purely Asiatic towns are found later with Greek city organization and Greek as the official language.

The old idea that the Greeks in Asia soon became half-caste Levantines is entirely untrue, at any rate prior to the Christian era; they took much trouble to preserve their



From 'Herrscherköpfe des Altertums' (Lange) Atlantis-Verlag

(Above) *Helmeted head of Seleucus I, one of Alexander's Successors and founder of the Seleucid Empire, from a coin; it shows the bull's horn and ear which became the Seleucid badge*

(Below) *Coin-portrait of Seleucus' son Antiochus I, who when joint-king of the Farther East with his father defeated a nomad invasion and rebuilt the ruined Alexandrias as Antiochs*



From 'Herrscherköpfe des Altertums' (Lange) Atlantis-Verlag

Greekhood. By the 2nd century B.C. one Greek culture-sphere extended from the Adriatic to India, and literature and learning might be found in the most remote places; the historian Apollodorus (c. 100 B.C.) came from Artemita beyond the Tigris; the astronomer Seleucus, who fought a losing battle in defence of the heretical theory that the earth went round the sun and came near to the true explanation of the moon's influence on the tides, worked in a Greek city on the Persian Gulf. The Stoic school had a branch in Seleucia on the Tigris, and some cities could give training in rhetoric and grammar; every important city had a theatre where classical Greek plays were acted. The discovery of Greek poetry written at Susa in the 1st century B.C. was startling.

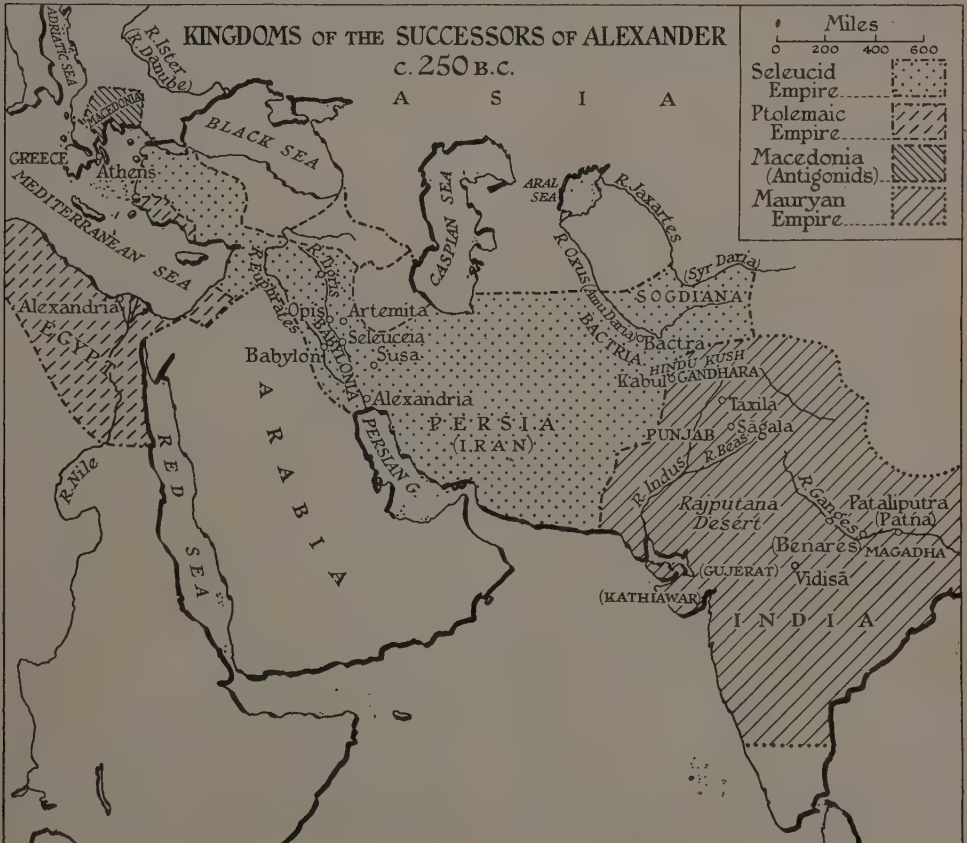
From the cities Greek culture radiated to such Asiatics as desired it, though its adoption, where it happened, was usually superficial; but Greek was a conquering tongue wherever it went, and various Asiatics wrote in Greek for the sake of a world-wide public. Greek law was also a strong Hellenizing influence, for all the native populations in the cities were subject to the city law, which was Greek; in Syria, for example, there ultimately grew up a mixed Graeco-Syrian law. Babylonia was exceptional in this regard (and in others), for though, for trade purposes, the Babylonian business man might take a Greek name and write in Greek, the Babylonian business world was never affected by Greek law, while in several small ways Babylonian civilization affected Greeks, the only civilization which did; the cooperation of Greek and Babylonian astronomers is a very bright spot in Hellenistic history, but it was the Babylonian who gave, the Greek who took. However, one way or another, through the cities, law, language, and through long years of contact and trade intercourse, there grew up a sort of Hellenistic varnish which overspread most of western Asia. But it remains true of every form of contact that all that Asia took from Greece was outward form only, and never spirit; in matters of the spirit Asia knew that she could outstay the Greeks, as she did.

This was very notable in the religious sphere, where Greeks had nothing to give to Asia. Being polytheists, they naturally, wherever they settled, worshipped the god who knew the way of the land, and identified him with some god of their own; but Asia never worshipped Greek gods, while she exported her own religions freely to the Mediterranean—the mystery religions of Asia Minor and Syria, and the terrible Babylonian Fate, with whom there came to the western world

the curse of astrology. But Greeks in Asia were not so entirely bemused by the Oriental religions as sometimes supposed; it is interesting to find them at Susa compelling the great goddess Nanaia to do their bidding, to her own detriment, while the farther east we go the more we meet with the most Greek of all deities, Athena.

The native arts of Iran were apt to borrow, and sometimes misapply, a modicum of Greek form and ornament; but in the 3rd century pure Greek art flourished in Asia Minor and Syria, and in the 2nd the realistic coin-portraits of the Graeco-Bactrian kings are the high-water mark of all Greek portraiture. Alexander, in opening up a new world, had given a tremendous impulse to international trade; masses of detail are now available, and some of the new luxuries, like Malabar pepper and Chinese silk, have quite exciting stories of exploration, Greek or Chinese, behind them; few cities have so dominated the trade of half a continent as did the mighty Seleucia on the

Tigris, where all the main routes converged. Two great things the Greeks in Asia did. One was the invention of the Seleucid calendar, in which for the first time chronology was reckoned from a fixed era, as today. The other was this. Most of the peasantry of the Persian Empire had been serfs. When land was transferred to a Greek city, the serfs tended to become free 'settlers' and their villages gradually acquired some form of corporate life; and as, concurrently, the Seleucid colonies were growing into cities, the whole level of civilization over large parts of Asia for a time steadily rose. When one considers the vastness of the Seleucid experiment, it seems amazing that it failed; but fail it ultimately did, except in Asia Minor and Syria, where Rome salvaged it. The reasons are simple: there were not enough Greeks in the world, and they never went on the land, but collected in cities; conquerors may come and go, but the land belongs to those who till it. The cities, outside the Roman Empire,



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ultimately became enclaves in the Parthian or some other native state; they for long maintained their individuality, and some may have struggled on into the 3rd century A.D., but all were ultimately swamped in the Asiatic tide.

We must turn to India. Alexander had invaded India with a small army and with one friend in view, the ruler of the great city of Taxila (near Rawalpindi). After desperate fighting and great feats of arms, like the capture of the precipitous rock-stronghold of Aornos, he had cut his way as far as the Beas in the eastern Punjab; there, with half his army dead or on his communications with Taxila, and the rest, after eight years of marching and fighting, worn out by the heat and the rains, his men refused to go farther, and he went home down the Indus and across the Makran. On his departure, the new king of Magadha on the Ganges, Chandragupta the Maurya, united northern India into the Mauryan empire, which came to embrace the whole country north of the Deccan, and nothing of what Alexander had done in India remained save the legend of his name and three or four of his cities, islets in the Indian flood. Seleucus made a permanent treaty of peace with Chandragupta, and gave him a daughter or niece as a wife for himself or his son; so it is possible that Chandragupta's grandson, the famous Asoka, who converted most of northern India to Buddhism, had some Macedonian (Seleucid) blood.

In the latter part of the 3rd century the Seleucid satrapy of Bactria-Sogdiana (northern Afghanistan and Russian Turkestan), Iran's bulwark against the nomad world, gradually achieved independence, and its third king, the Greek Euthydemus, who married the daughter of a Seleucid princess, made of it a very strong state; Professor Toynbee's great work has shown how a 'march' state normally develops disproportionate power. The Seleucids had never obtained the cooperation of their Iranian subjects; but Euthydemus must have followed Alexander's idea, for he secured the support of the native landowners and their splendid cavalry, and also improved the condition of the peasantry that their villages became quasi-corporate townships. He and his son and successor Demetrius enlarged their kingdom and Demetrius took Alexander's title 'Invincible'; he meant to be a second Alexander, as he very nearly was.

In 184 B.C. the last Mauryan emperor was assassinated, and the derelict empire was promptly invaded by Pushyamitra, king of Vidisa, from the south and by Demetrius from the north. Demetrius and his generals

swept northern India, and his general Menander took the Mauryan capital Pataliputra on the Ganges (near Patna); Demetrius' dominions lay in a vast horse-shoe round the Rajputana desert, and for a few years he ruled from the Persian desert to the middle Ganges and from the Syr Daria to Kathiawar and Gujerat. There is no mystery as to how he succeeded where Alexander had failed. Asoka had made most of northern India Buddhist, and Buddhists preferred the tolerant Greek to the earnest Brahmin. Pushyamitra, who in the tradition, true or false, persecuted them. One of the firmest principles of Hellenistic Greeks was that no man's religion was anybody's business but his own, and, while all Indian religions were to be equally safe in Greek hands, the whole Buddhist world welcomed the Greeks as their champions and saviours. Demetrius frankly followed out Alexander's idea and took India into partnership; he issued a coinage like no other, a bilingual coinage with Greek legends on one side and Indian (Kharoshthi) on the other, copied by every subsequent Greek king in India; he made an Indian city, Taxila, his capital; some Indians saw in him the traditional King of Justice of their own literature. The country was organized on the Seleucid model, though naturally more loosely; the Greeks in India can never have been too numerous, and may have made much use of existing native organization; beside Alexander's, only three or four 'Greek' cities are known.

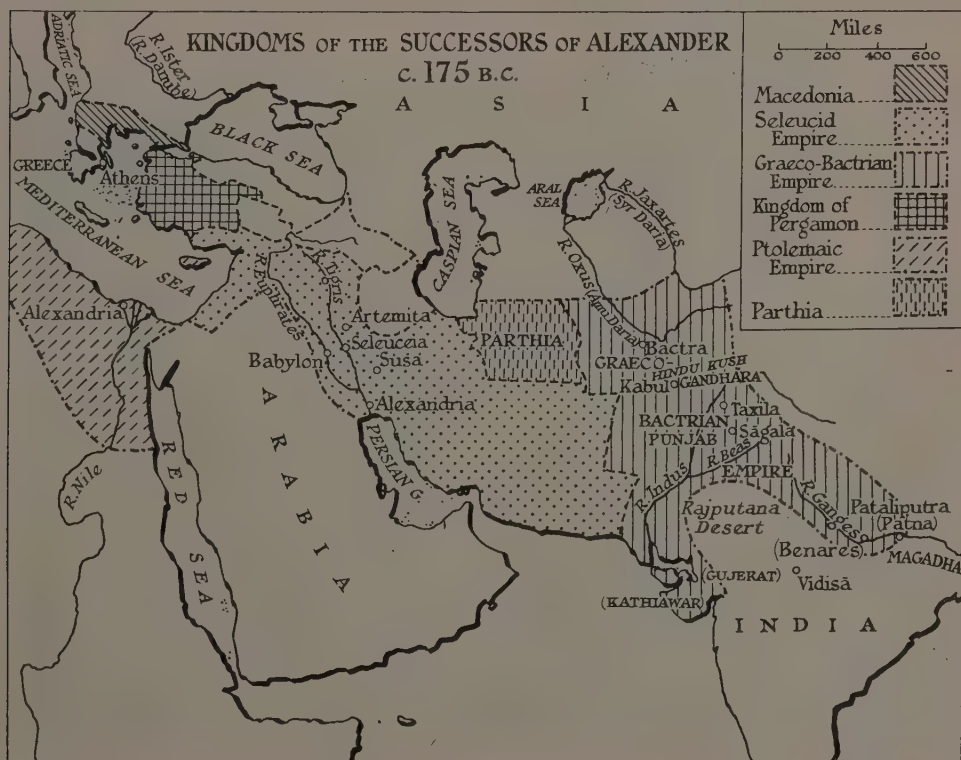
But nothing ever prevented Greeks from tearing each other to pieces if they had the chance. The Greeks in Bactria did not like Demetrius' pro-native policy, and when he was attacked by a general of the strongly nationalist Seleucid, Antiochus IV, they joined the invader; Demetrius was killed, and there were new rulers in Bactria itself; it is interesting that something like the modern struggle between nationalism and cooperation was fought out 2000 years ago under the shadow of the Hindu Kush. Demetrius' successor in India, Menander (probably his son-in-law), had to draw in his southern boundaries, though a new discovery is said to show that Greeks must have ruled for some time as far south as Benares.

Menander was a Greek king who worshipped Athena, and traces of Greek literature written in his kingdom exist; but he carried on Demetrius' policy, had a native capital, Sāgala, and his popularity with his Buddhist subjects gave rise to a legend that he became a Buddhist and entered the Order, and that his ashes after his death were divided



From 'The Cambridge History of India', C.U.P.

Portraits from contemporary coins struck at Bactra. 1. Euthydemus, the second founder of the Graeco-Bactrian kingdom, in old age. 2. His eldest son and successor Demetrius, the conqueror of India, wearing the elephant-scalp, the 'symbol of power', only represented previously as worn by Alexander (on coins of Ptolemy I and Seleucus I). 3. Demetrius' brother Antimachus I, a sub-king, wearing the characteristic flat kausia of his house. 4. Eucratides (idealized), cousin and general of the Seleucid Antiochus IV, who conquered Bactria from Demetrius; his helmet bears the Seleucid badge



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Begram near Kabul in Afghanistan is the site of excavations which show clearly the influence of Greek culture in India. Greek, Indian and Chinese objects were discovered there. Many of the reliefs are simply Oriental versions of Greek themes. The two medallions shown are examples of this. One is evidently a copy of a Greek relief of Ganymede with the eagle of Zeus, whose cupbearer he was; the other portrays the poet with his lyre, a recurrent theme of classical art. The bronze statuette of a child (five inches high) is from Taxila, near the modern town of Rawalpindi





British Museum

Two specimens of the Buddhist art of Gandhāra: polished sculptures in the grey local stone. Their exact date, and the extent to which they reflect direct Greek influence, is disputed; but they probably belong to the first four centuries A.D. and are found in shrines put up by Buddhists, to acquire merit, along a route frequented by thousands of pilgrims from Central Asia to the sacred places of Buddhism in North India. Many depict scenes from life-stories of Buddha. Above is an incident in the conversion of Nanda, Buddha's half-brother, who is seen leaving the chamber of his wife, carrying the Master's begging-bowl. The architecture strongly resembles the Hellenistic style of Syria; and the interested figures looking over the top of the composition may be compared with some of the poet's audience opposite. Hellenistic, too, is the idealized portrait-style which seems to have influenced the sculptor of the seated Buddha (right); as distinct from the realism of the Roman sculpture-portraits with which it may be contemporary, and which the arrangement of its drapery in part resembles



just as Buddha's had been. He is the interlocutor in the most attractive of the earlier Buddhist works, *The Questions of King Milinda*. After his death, c. 150-145, Greek rule, it seems, steadily shrank; about 100-80 a Saka horde cut the Greek sphere into two kingdoms, which were both destroyed about 30 B.C.; the last Greek king of the western kingdom was installed by a Chinese general as China's vassal. In another century Greeks and their language had vanished from India.

Greeks regarded Indians as more their equals than other barbarians; but their mentalities differed considerably, and though they lived side by side for so long, their influence on each other (art excepted) was small. A few Greek words in Sanskrit; an Indian writer or two who apparently knew some Greek literature; an occasional Greek who became a Buddhist or a Bhāgavata or who could quote the *Mahābhārata*—that seems about everything, now that the classical Sanskrit drama is known not to have been derived from the Greek. Certainly Indians respected Greek science, and later made that vanished people magicians: their doctors could restore sight to the blind (? operations for cataract) and Greeks could make and fly aeroplanes. Greek influence does however show in the so-called Gandhāra ('Graeco-Buddhist') school of sculpture, the product of "Buddhist piety utilizing Greek technique"; the earlier pieces show a large amount of Greek form and ornament, which later dies out, but the subjects are practically always taken from the lives of Buddha. Though this school *must* be connected with the Bactrian Greeks, many still maintain that it was started far later by workmen imported from the Roman Empire, a theory full of difficulties.

However this may be, the beginnings of the Buddha-statue itself can be dated from coins. Indians had never represented Buddha in human form; his presence was indicated by

symbols. But early in the 1st century B.C., at latest, Buddhists were getting Greek artists to carve for them scenes from Buddha's life, and the Greeks naturally portrayed Buddha as they did their own gods, as a beautiful man,

like Apollo. So when, later on, Indians, dissatisfied with the Greek Buddhas, desired something which better expressed their own feelings, they too had to represent Buddha in human form, for it was too late to do anything else. Ultimately Indian artists were to reach the greater spirituality toward which they were struggling; the transition from the Greek to the Indian type has been illustrated more than once. Buddhism has long vanished from India; but, as a matter of history, every statue of Buddha in Asia is there today because some nameless Greek artist, to earn his



From 'Herrscherköpfe des Altertums' (Lange) Atlantis-Verlag

An idealized head of Alexander with the horns of his Egyptian patron-god Ammon, from a tetradrachm of Lysimachus of Thrace, one of his Successors; early 3rd century B.C.

living, first portrayed Buddha in the only way he knew of.

India today retains just one living trace of Greek influence, the Alexander-descents of the Hindu Kush. The Seleucids invented a fictitious pedigree which made them lineal descendants of Alexander, and the Euthydemid kings, Seleucids on the distaff side, proclaimed themselves descendants also. When the nomads conquered Bactria and Greek India, some Greeks took refuge in the hills; some hill ruler would marry a Greek woman, who even if not of the royal blood in some Greek kingdom, would in the family tradition soon become so, and consequently a descendant of Alexander. North of the mountains, most of these families are extinct; if any still exist they are Soviet citizens. But there are still such families on the Indian side; Hunza for example is (or recently was) ruled by a descendant of Alexander with a British title. Of the whole tremendous adventure of Greek rule over northern India only that one thing has survived—a legend based on a fiction. Vanity of vanities, saith the Preacher; all is vanity.

Irrawaddy Crossing

by DAVID HEATON

EVEN for a forestry working-plan party in Upper Burma it had been a gruelling season. But it was ended now and Oxenforth and I, his assistant, had pooled all our remaining luxuries to provide a dinner in celebration of the conclusion of five months' toil and of tomorrow's journey to Maymyo in the sweet cool of the Shan Hills.

We were enjoying coffee and cheroots when a weary dak-runner handed the green canvas mail-bag to Oxenforth. The telegram which came out with the first handful of letters claimed priority even above home mail. With a string of invective Oxenforth read it and handed it over for my perusal. It was from our Conservator and read: "Before proceeding Maymyo, please swim four elephants to the Irrawaddy east bank for next season's work in Mogok Division. Suggest Kyanhnyat as suitable crossing."

To say this was a blow would be putting it very mildly. We had just earned our release from the blackened smoky Hades of leafless trees that was the Burma jungle in April and it was intolerable to be ordered to stay even one extra day. Our rage at this frustration was accentuated by visions of an unfeeling Conservator composing the telegram in the luxury of Maymyo. However, we spent the rest of the evening drawing up careful plans to enable us to carry out orders with the utmost expedition.

Maung Chit Tin, the head mahout, after taking our kit to the railway, was to set out with the four worst elephants for the Irrawaddy bank directly opposite Kyanhnyat village. The four worst elephants because, as Oxenforth put it, "Either you or I will have to complete this area next season, so we might as well keep the best for ourselves."

Oxenforth and I were to proceed by railway to Shwebo where we could get a native bus to take us and our kit to Kyaukmyaung, where we could board the Irrawaddy Flotilla Company's mail steamer to take us to Kyanhnyat. We reckoned that our complicated itinerary would take three days and get us to Kyanhnyat about the same time as the four elephants, cutting across the northern base of our triangle, would reach the opposite bank. Everything went to programme and we had only just settled in the Kyanhnyat forest resthouse when a mahout reported all ready for the morrow.

Kyanhnyatis, I think, the hottest place I ever struck in Burma. To add to our discomfort, the 'mango' showers of a few days earlier had hatched out myriads of sand-flies, which passed easily to their feast through the all too large mesh of our mosquito nets. We had hoped to get fairly regular supplies of ice from passing Flotilla steamers, but we had judged it badly and there wasn't another for a week. Altogether life in Kyanhnyat bid fair to be worse than in the jungle. Our besetting ambition was to finish the business as quickly as possible. With this end in view we were across the river at dawn marshalling elephants and mahouts for the great attempt.

The sand-flies were to blame for our first wasted day. Oxenforth had spent a sleepless night reading all he could find on swimming elephants across rivers. Amongst other things he discovered that "Usually strong swimmers, elephants are occasionally prone to cramp and on that account should be attached by a stout rope to a boat capable of assisting them in case of difficulties". Trained elephants are worth several hundred pounds each and the conscientious Oxenforth was determined to take every precaution. By the time the requisite boats and ropes were at hand the sun was setting and we must await another dawn.

Another night of sand-flies and once more we came to the west shore, but only to learn that the paddy barges, collected yesterday, had resumed their voyage and left us in the lurch. Oxenforth consigned boats, elephants and conservators to the underworld and decided that the animals must swim unescorted.

The elephants had their own ideas. Deceptively willing to enter the shallow water near the shelving shore, they did so purely in a spirit of frivolity, entirely without any intention of launching themselves. They squirted each other and their mahouts, who coaxed and cursed and finally goaded in vain.

By this time a large crowd of brilliantly dressed Burmese from the adjacent village had come out to squat in a long line under the shade of the kokko trees which lined high-water level. They had come to enjoy the fun and squatted contentedly smoking cheroots. From time to time, as if to rub in our humiliation, they would offer advice.

A suggestion to drive the elephants by waving blazing bamboo torches behind them

seemed so practical that we decided to adopt it. Willing spectators were despatched to procure torches and then wield them.

At first it seemed that success was to be the reward. As the fiery ring advanced the elephants with their mahouts seated on their heads went slightly deeper into the river.

It all happened very suddenly. One of the torch-bearers, impatient at the slow progress, flung his torch at the hindquarters of the animal in front of him. Simultaneously, or so it appeared, all four elephants with an almost nonchalant jerk of the head flung their mahouts far into the water. Then, bellowing and screaming, they turned and charged their tormentors. The torch-bearers dropped their torches and fled for the village. We fled with them. Luckily for us, the elephants decided on what to them must have seemed easier game. They lost interest in us and charged the squatting spectators. In an incredibly short space of time the branches of the trees were bedecked with brilliant colours, whilst the high-water mark was delineated by smouldering cheroots.

Foiled a second time, the elephants now ran into the village, whence came a sound of breaking timber. The rest of the day Oxenforth and I spent assessing the damage and settling the surprisingly modest claims.

As gracefully as possible we bowed to the inevitable and took the head mahout's earlier advice to send for the other elephants, one of which he guaranteed to swim across. After a further ten days of waiting the new elephants arrived, and again we stood on the west shore to taste more frustration.

On the fourth day, however, the guaranteed elephant, with Maung Chit Tin clutching a life-line tied round the animal's girth, docilely

took the water and swam strongly to the half-mile distant east shore. Once fully waterborne the necessity for the mahout's life-line was apparent. Elephants when swimming are submarines with trunk doing duty for periscope. For most of the distance the only visible part of Chit Tin was his feet occasionally breaking surface.

A few days later, encouraged by the sound of the first elephant's *kalouk* (wooden gong hung round the neck to facilitate the tracking of strayed elephants) from the distant east shore, three other elephants fairly willingly made the passage. That night, having packed to catch the Mandalay mail steamer in the morning, we celebrated our release with the last of our whisky.

As we stood waiting our turn to board the steamer in the morning Chit Tin approached, *shikkoed* (bowed) and casually announced that during the night all four elephants had, in spite of chain-shackled forelegs, swum back to the west bank.

Finally, after weary journeyings back and forth to the nearest telegraph office, we obtained conservatorial sanction to charter the Irrawaddy Flotilla Company to ferry the brutes on a cargo barge. More weary telegraphing, and then came a day when the four elephants, closely guarded, stood chain-shackled and tethered in a nearby mango grove.

It was during the first thunderstorms of the South-West Monsoon in late May that we reported ourselves in Maymyo, to learn that for the next jungle season we were to remain together for work in the Promé Division of Lower Burma.

It is unsafe to ask Oxenforth if elephants can swim. That goes for me as well.



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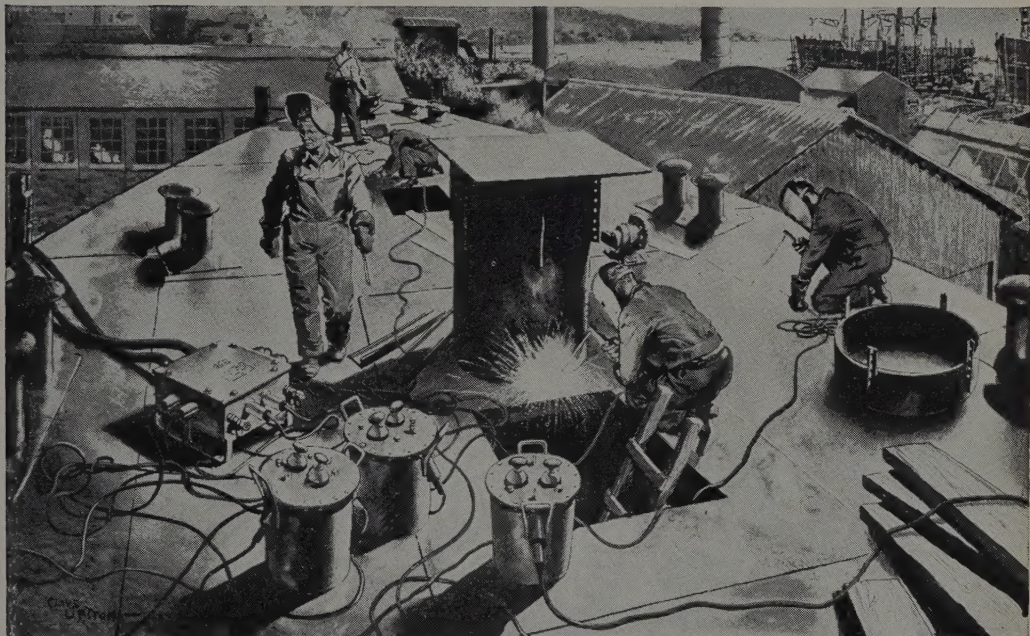
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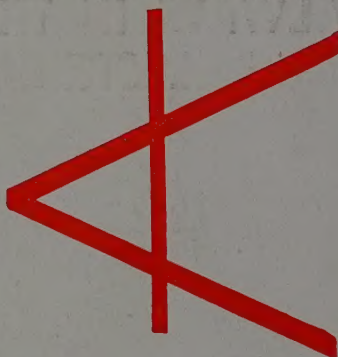
Under the pressure of war the productive technique and capacity of British Industry was developed to a remarkable degree and the vast resources of the G.E.C.—leaders in British electrical research and technical achievement—were fully and untiringly concentrated on the war effort.

In meeting the urgent and numerous problems arising from war needs the Company has made important technical advances in all applications of electricity, including the important one of electronics, which will be of inestimable value to all concerned with schemes for reconstruction or development in any part of the world.

ELECTRIFICATION SCHEMES

G.E.C. Electrification Schemes have been applied to all industries, including: Aircraft Factories; Chemical Works; Collieries; Food Factories; Gold Mines; Iron, Steel and Copper Works; Locomotive and Railway Carriage and Wagon Works; Motor Car Works; Ships and Shipyards; Textile Mills; Oil Refineries, etc., etc.

This
mathematical
symbol means
'not less
than'



This
well-known
emblem
means
'not less than
the best'

PHILIPS

**LAMPS • RADIO • X-RAY • COMMUNICATIONS EQUIPMENT
AND ALLIED ELECTRICAL PRODUCTS**